Advant® OCS
with Master software

AdvaInform® Event Log

User's Guide

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CAUTION	Hazards which could result in equipment or property damage
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Chapter 1 Introduction

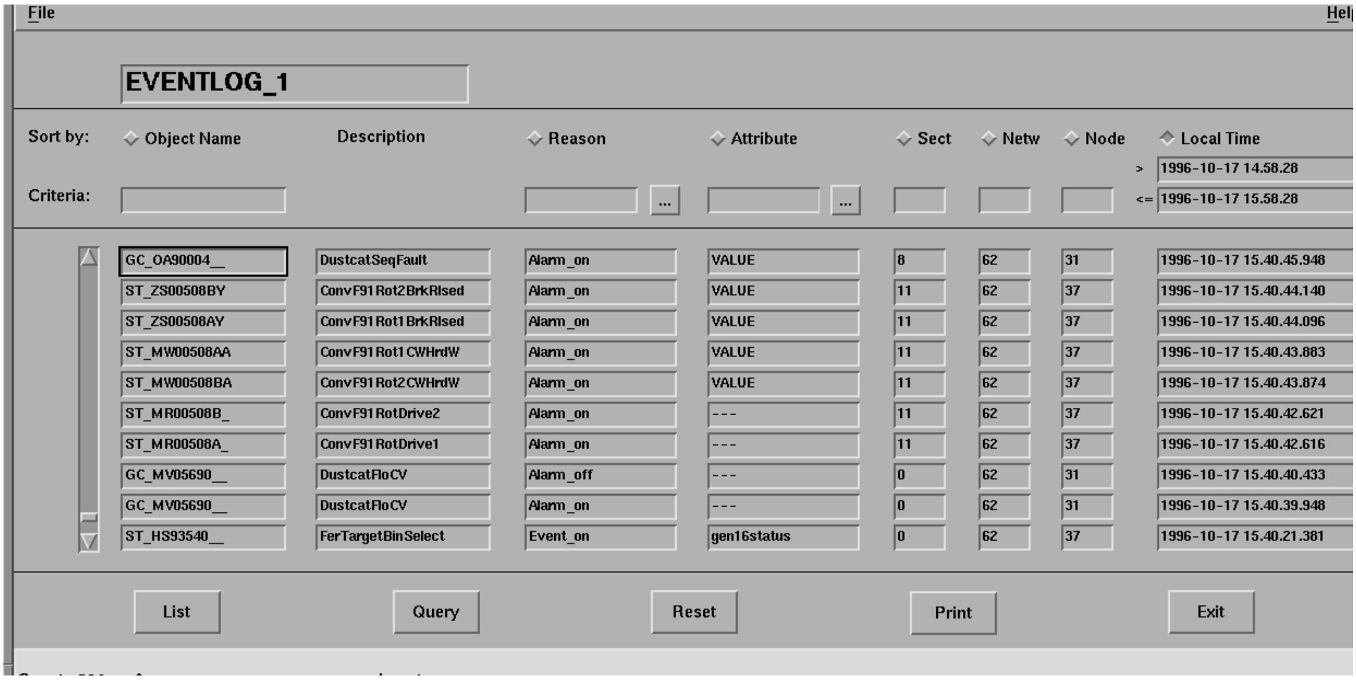
1.1 Before You Begin

This guide provides information about the *AdvaInform Event Log* option.

AdvaInform Event Log is used for long time storage and analysis of process events such as process alarms, start and stop of equipment or sequences. There are tools available for sorting and analysis purposes. This makes it easier to find and eliminate systematic errors in the process.

The Event Log database can be accessed either through the presentation display provided with the Event Log option or through SQL or any tool supporting SQL access. You can use spreadsheets or AdvaInform Reports for report purposes.

The presentation display is used to analyze and document process events. It can be used by operators using AdvaCommand to start the display, by maintenance personal on their PC's or by system engineers using the local console on the IMS.



EVENTLOG_1

Local Time > 1996-10-17 14.58.28
<= 1996-10-17 15.58.28

◇ Object Name	Description	◇ Reason	◇ Attribute	◇ Sect	◇ Netw	◇ Node	◆ Local Time
GC_OA90004__	DustcatSeqFault	Alarm_on	VALUE	8	62	31	1996-10-17 15.40.45.948
ST_ZS00508BY	ConvF91Rot2BrkRlsed	Alarm_on	VALUE	11	62	37	1996-10-17 15.40.44.140
ST_ZS00508AY	ConvF91Rot1BrkRlsed	Alarm_on	VALUE	11	62	37	1996-10-17 15.40.44.096
ST_MW00508AA	ConvF91Rot1CWHrdW	Alarm_on	VALUE	11	62	37	1996-10-17 15.40.43.883
ST_MW00508BA	ConvF91Rot2CWHrdW	Alarm_on	VALUE	11	62	37	1996-10-17 15.40.43.874
ST_MR00508B_	ConvF91RotDrive2	Alarm_on	---	11	62	37	1996-10-17 15.40.42.621
ST_MR00508A_	ConvF91RotDrive1	Alarm_on	---	11	62	37	1996-10-17 15.40.42.616
GC_MV05690__	DustcatFloCV	Alarm_off	---	0	62	31	1996-10-17 15.40.40.433
GC_MV05690__	DustcatFloCV	Alarm_on	---	0	62	31	1996-10-17 15.40.39.948
ST_HS93540__	FerTargetBinSelect	Event_on	gen16status	0	62	37	1996-10-17 15.40.21.381

Figure 1-1. Event Log Presentation display

A search criteria for certain events is easy to specify. When the resulting events are collected into the display buffer they can be stored into a text file or printed out giving an excellent help for analysis.

Data security can be achieved if you backup the Event logs onto DAT tapes using the incremental backup.

The Event Log database can store the collected data in Event Logs. The data is stored in circular logs, first in-first out. All Advant OS and IMS stations store all process events in the control network into a local event list on their respective RTA board. In a few words you can describe the Event Log as a feature that "copies" event data from an Advant Station RTA or a MasterView 850/1 into event logs.

The Advant Station 500 IMS, where the AdvaInform Event Log is installed, can either be placed on the control network or the plant network.

In the case where the AS 500IMS is placed on the control network, the local RTA event list can be utilized to get the events into the Event Log.

In the case where the AS 500IMS is placed on the plant network, events lists from nodes on all control networks can be collected via MasterGates. This gives the ability to use the Event Log as storage and information database over all the events from the whole plant.

The Event Log contains most of, but not all of the information about an event. Some of the primary log information such as user defined event texts, event or alarm state and time quality is not transferred to IMS.

The Event Log fits into the Advant OCS concept according to Figure 1-2 which shows a configuration with the Event Log installed in an AS 500IMS on a plant network.

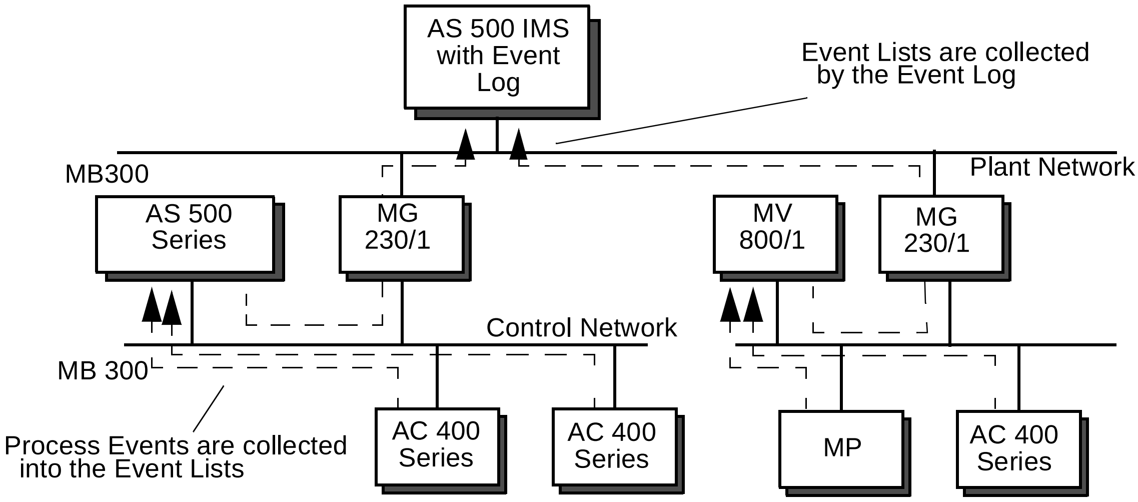


Figure 1-2. Events lists from several control networks can be stored in an AS 500 series IMS with Event Log on the plant network

To fully understand the information in this book you should have a basic knowledge about Advant Station 500 Series IMS and OS. To learn about your IMS and OS - Basic Functions and options - you are recommended to participate in the training courses provided by ABB Industrial Systems training centers.

1.2 Equipment Requirements

1.2.1 Hardware

The Event Log can be installed and run on any Advant Station 500 Series IMS.

You can access the Event Log configuration menus from an IMS console, an X terminal, a PC emulating X, or from an Advant Station 500 Series OS. From the same terminals you can also access the available tools for presentation of the collected event data.

1.2.2 Software

Event Log requires AdvaInform Basic Functions to be installed.

1.3 How to Use This Book

1.3.1 Manual Organization

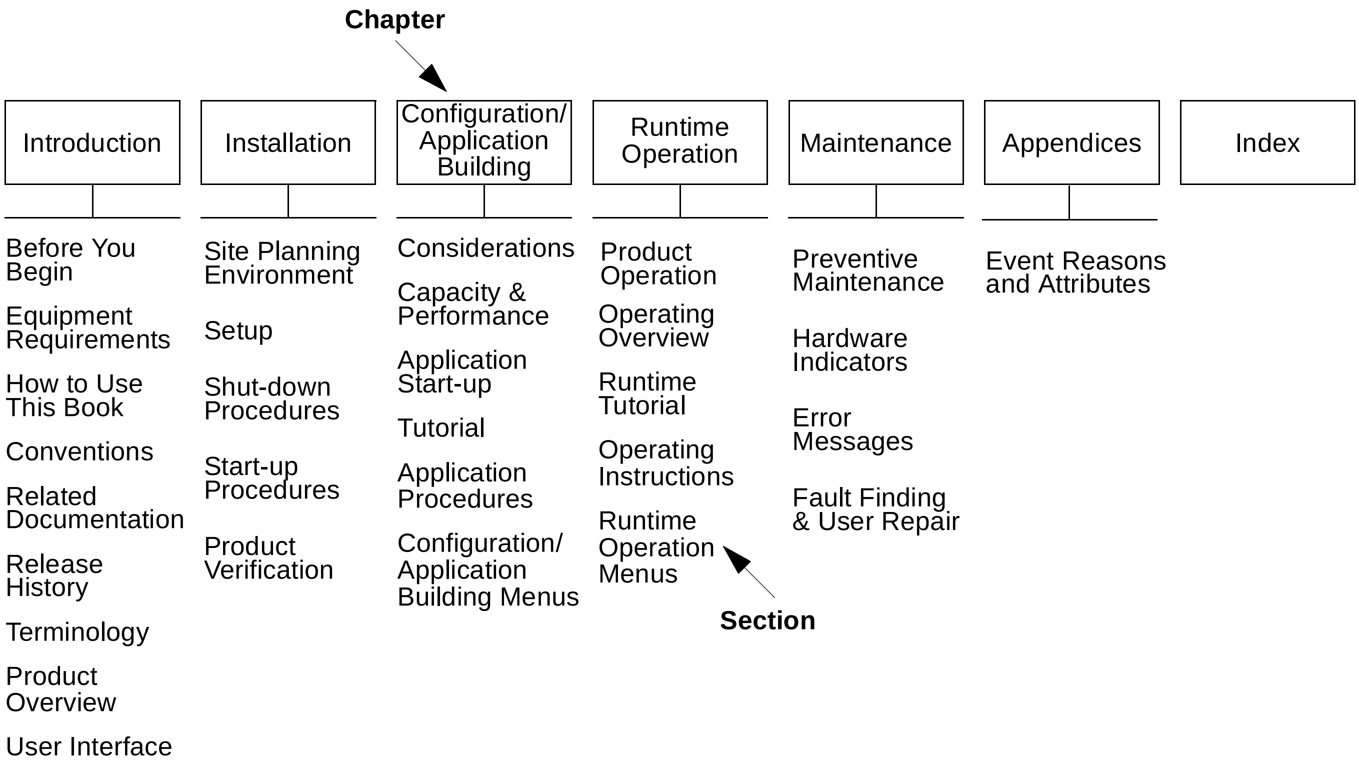


Figure 1-3. Manual Organization

The different chapters in this book covers the following type of information.

Chapter 1, Introduction

In this first chapter you will find a brief description of the Event Log - for what purpose it is used, what features it provides and similar aspects. This means that this chapter is directed to those who don't need detailed information about configuration and operation - just an overview.

Chapter 2, Installation

Covers a type of information that is of most interest for system managers. That is, how to prepare for installation of the option, how to handle upgrades and similar topics. A user of the Event Log can normally skip this chapter.

Chapter 3, Configuration/Application Building

After the initial installation of the Event Log, the configuration tools are available but there are still no configuration data making the Event Log prepared to receive and store event data. This chapter describes how the application responsible performs the steps necessary to achieve that.

Chapter 4, Run-time Operation

The Event Log option includes a display for presentation of event data. This chapter describes how this tool is used. It also describes how features included in AdvaInform Basic Functions can be used for presentation of event data.

Chapter 5, Maintenance

This chapter is of particular interest for your system manager. It deals with questions like maintenance, trouble shooting and error reporting.

Appendix A, Event Reasons and Attributes

Holds information of type reference material. That means information which is of a non-descriptive type.

1.4 Conventions

The following conventions are used throughout this guide.

Table 1-1. Conventions

Example	Type of information
.. refer to the *AdvaInform History User's Guide..*	References to other books are written in italics.
.. *Number of event logs* · 256 Bytes..	Italics font used instead of a value.
.. the *very first time* you ..	Italics font used to emphasize.

Table 1-1. Conventions (Continued)

Example	Type of information
Event Log Status	The names of window elements (for example, the title in the title bar of a window, the label for a field of a dialog box) are written in the same font as where they appear in the windows.
.. press the Return key ..	The names of keyboard keys are written in Times font (same as for the rest of the text) and in the same way as on the keyboard (initial capital letter for example) in plain text.
.. press the space bar ..	Lowercase letters are used for the name of a keyboard key that is not labeled on the keyboard.
.. press the Return key ..	In descriptions, the word "key" is used in conjunction with its name.
.. press <Return> ..	In tables and procedures, angle brackets replace the word "key."
.. <Ctrl-C> ..	A dash is used to indicate that you must simultaneously press several keys - Ctrl and C in the example.
.. press the OK button ..	Push and toggle buttons are written the same way as they appear on the display. Also, in descriptions, tables and procedures, the word "button" is used in conjunction with its name.
.. the File menu ..	Initial capital letters are used for the name of menus listed in the menu bar.
.. select New from the File menu ..	Initial capital letters are used for the name of menu items.
.. select File - New ..	Short for select New from the File menu (above).
.. enter **TIC132** into ..	In a tutorial, for ex., you may be told to enter a value into a field. The value is then written boldfaced.

Other conventions:

In procedures and tutorials for example, output on the screen is written in Courier font:

```
Entered value is not valid. The value must be 0-30.
```

User input is written in boldface:

```
Enter an object name:
TIC132
```

1.5 Related Documentation

Table 1-2. Related Documentation

Category	Title	Description
Hardware	Advant Station 5xxHardware User's Guide	These books covers the installation and maintenance of the hardware for different Advant Station models.
Station	Advant Station 500 Series IMS User's Guide	This book describes the Advant Station IMS in general. Read this book to find out about the functionality, perform, capacity of all AdvaInform options.
Software	AdvaInform Basic Functions User's Guide	This book describes the basic functions that support all AdvaInform software packages.
Other	AdvaInform Object Types Reference Manual	This book provides table names and attribute names for all object types supported by IMS.
Software	AdvaInform User API User's Guide	This book describes the AdvaInform User API and how to use it to build applications.

1.6 Release History

Version	Description
1.0	The first release of the AdvaInform Event Log option. It includes software required for configuration, communication and presentation of event log data.

2.0	**Independent of AdvaInform History** Event Log can now be installed independent of the history option. A separate space outside the History Message Logs is allocated in the database for Event Logs. You can buy Event Log with two different database sizes, dimensioned for 100.000 (standard db) or for 1.000.000 events (large database). If History is installed you can select whether the events shall be placed in History Message Logs or in the local Event Log database. **Activation and deactivation buttons for Event Log status display** You can now activate and deactivate event logs from the event log status display. **Views to configuration data** You can inspect the event log configuration data using SQL. The User´s Guide documents public database views that you can use. **Support of statistical information about Events** You can read how many times each event has occurred and also calculate the total number of events that occurred during a time period. You can also erase the events from the future statistics using SQL*Plus. **Description is included in Event List** The description, being perhaps the most important identifier of an object is now included and presented in the event logs.
2.1	No more support of AdvaInform History. Event Log does no longer support storage of events in the History message logs.

1.7 Terminology

AdvaInform User API	A tool box that provides the means to establish remote process-to-process communication. AdvaInform User API allows user-written programs in the HP-UX environment to interact with ABB objects no matter where they reside (locally or remote). The AdvaInform User API provides the following services: - commands to execute operations on objects - subscriptions to read data from objects, on demand, on event, or cyclically - type directory services
Core System	All nodes in the distributed control system communicate with each other through the so called Core System. The Core System provides services for the system applications. Using these services, the system applications can communicate with each other whether they reside in the same node or in separate nodes of different types. The *type directory*, which is part of the core system, contains information on all known object types.
Event	A general definition of an event in this context can be expressed as: something that, in some way, changes the status of an object (for a definition of object, see below). Further on, an event is defined by two parameters: *Reason* and *Attribute*. The Reason tells *what* has happened to the object and the Attribute tells *which attribute* (value, some of the limits for example) that further specifies the event. *Example*: An object value, for example a digital one, changes its value from 1 to 0 (or, in other words, from *on* to *off*). In this particular case *Reason* is Val_Change (value changed) and *Attribute* is VALUE. Refer to Appendix A, Event Reasons and Attributes for a description of Reasons and Attributes.
Event data	The data items constituting an entry in an Event Log or Message Log. For a closer description of the various event data items, refer to Appendix A, Event Reasons and Attributes.
Event log	An event log is composed by two parts: The configuration data that governs the collection of event data and the actual event data. Event Log is also short for AdvaInform Event Log.
IMS	Short for Advant Station 500 Series Information Management Station.
IMS menu	The menu that provides access to AdvaInform Basic Functions as well as optional functions. It is the main menu of IMS.

Object	In the core system (see above) all entities(1) that are accessed by several sub-systems (or parts of sub-systems running in separate nodes) are represented as *global objects*. There are two categories of global objects: **System Objects** Entities representing parts of the system itself. Examples are field interface devices (that is hardware devices), printers, communication links, sub-systems, entire nodes, etc. ***A*pplication objects** Entities representing the user application. Examples are Function blocks, (including Field interface function blocks), User objects, History logs, Batch control recipes, etc.
Object Access Services	Refer to the description of the AdvaInform User API above.
OS	Short for Advant Station 500 Series Operator Station.
Primary logs	In general a primary log is the log into which a data item is stored after having been sampled from the data source. For a numeric log for example, the source can be an Analog Input object (AI) - in an Advant Controller or in an IMS. For the Event Log, the primary logs hold event data and can reside in the IMS that runs the Event Log, in another IMS, in a MasterView 850/1, or in an Advant Station 500 Series OS. Event logs are asynchronous.
RTA board	A communication board installed in an Advant Station 500 Series IMS or OS for communication on MB300.
Secondary logs	A secondary log stores data retrieved from a primary log or another secondary log.
SQL*Plus	From the IMS menu you can open a Database Access window and enter SQL*Plus queries. You are then automatically logged in as an Oracle user and you can use SQL and PL/SQL queries into database tables and views.
SuperView 900	Information Management Systems on VAX/VMS. ABB product.

(1) This refers on the first hand to entities that are normally visible to end users. We will, for example, normally not encapsulate HP-UX utilities in this object model.

1.8 Product Overview

1.8.1 Product Structure

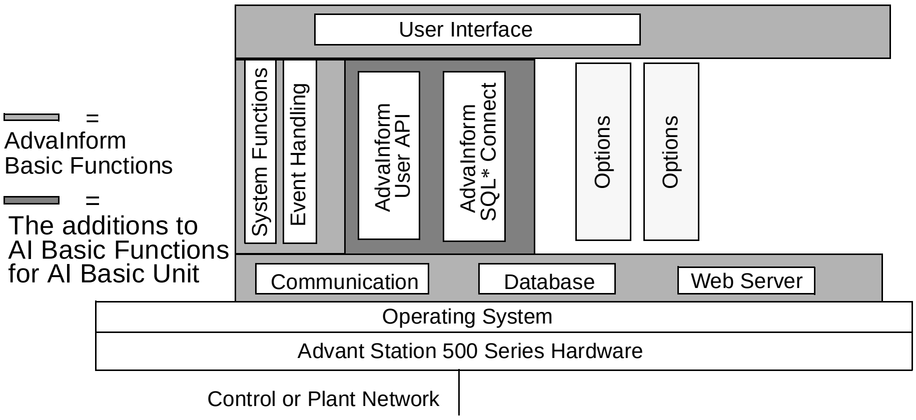


Figure 1-4. Product Overview

AdvaInform Event Log is a software option in the Advant OCS concept.

The event logs can be backed up using the incremental backup. Distributed access is available through SQL*NET TCP/I and SQL*Plus.

The Event Log is a function that handles secondary logging of event data in the Advant Station 500 Series IMS. The primary logs - the event data sources - can be located in one or more Advant Station 500 Series IMS, Advant Station 500 Series OS or ABB MasterView 850/1.

In the Advant OCS concept, the Event Log should be considered as a collection facility for event data. It acts in a way that resembles TTD (Time Tagged Data) logging from MasterPiece and Advant Controllers.

The Event Log fits into the Advant OCS concept according to Figure 1-5 which shows a configuration with the Event Log installed in an IMS on a Control Network.

The AdvaInform Event Log fits into the ABB Master concept according to the next figures.

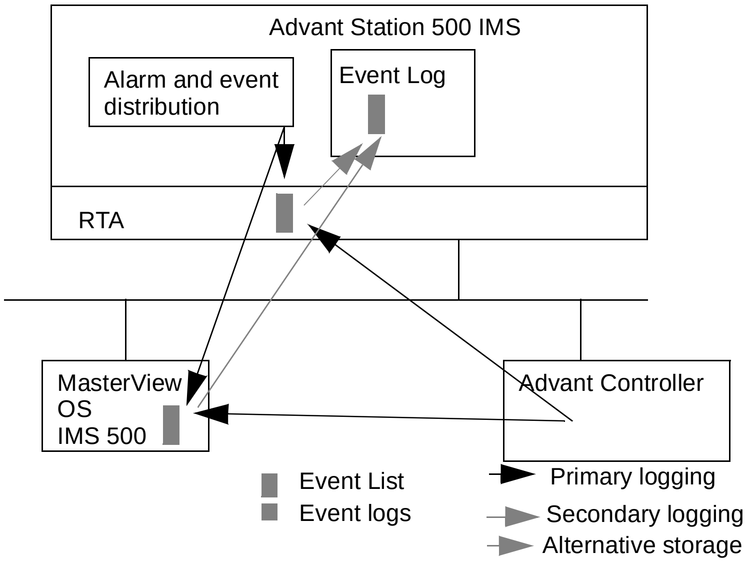


Figure 1-5. Event Log - Function overview

The figure above shows the Event Log function in an IMS 500 in a control network.

Data on events that take place in Controllers and in IMS are stored in event lists in IMS500, OS and MasterView. The purpose of the Event Log function is to “copy” records of event data to event logs or history message logs.

Data on single events can only be sent **within** a control- or plant network whereas the secondary logging (the “copying” of data from OS, MasterViews and IMS’s) can take place on both plant- and control networks.

Data stored in AdvaInform Event Log are accessible in a multitude of ways for example via SQL or the Event Log Presentation Display.

1.8.2 Event Log Configuration

An event log is composed by two parts, the configuration data that governs the collection of event data and the actual event data.

The configuration of individual Event Logs is carried out from the configuration display whereas status information on all configured logs can be obtained from a status display.

A view called event_log are accessible via SQL to retrieve config data see also Chapter 4.3.2, Run-time Operation

1.8.3 Event Log Communication

Primary logging of data on process events can take place within control- and plant networks. The event lists are located in the RTA-board of Advant Station 500 Series IMS and OS or in MasterView. Typically, the event lists have room for 1010 records of event data (33 pages with 30 records each plus 20 extra). If the primary log is full, the oldest record is overwritten when a new event is logged.

The purpose of the event log communication function is to copy data from event lists to Event Logs. Figure 1-5 shows the way event data are sent and received within the Event Log option.

The event log communication function sends a request for a primary log with a specified interval which can be configured individually for each Event Log. If not all records are retrieved at once, another request is sent when all received records are stored in the Event Log. This procedure continues until the primary log information is collected.

The secondary logging of event data is governed entirely by the values of the attributes that have been defined for individual logs. Furthermore, the event logs are started individually using the Activate- and Deactivate buttons in the main display of the configuration tool.

1.8.4 Event Log Status Display

The Status Display shows the current status of all event logs. You can use it for activation and deactivation of event logs.

1.8.5 Event Log Data Base

All event data records collected from a primary log are stored in tables in a relational data base. For users of the Event Log, a view called EVLOG can be used to access event data using SQL queries. Section 4.3.2, Using SQL*Plus describes how to do that.

1.8.6 Event Log Statistics

This is an event statistic for each or for all objects in your system. It counts all events that occur independent of which Event Log they are coming from.

You can calculate the number of events that occurred during a time period and then reset the statistics for the object(s) using SQL*Plus towards the ev_stat view see Chapter 4.3.2, Run-time Operation

1.8.7 Output from AdvaInform Event Log

Event Log data are stored in:

- Event Logs

  That means the primary information from the Event Log. The Event Log Presentation display is the normal user interface for presentation. Access is also available via SQL.

System Messages are stored in:

- System Message Log

A System Message display included in AdvaInform Basic Functions that you can use to inspect messages from the various IMS processes. For example error messages.

Trace log messages are written to

- Trace file (only if specified at start-up).

Refer to the *Advant Station 500 Series IMS User's Guide* for a description how to start IMS with trace logging set on.

System Status Information is available from

The Node Status display shows the current status of all options running in your IMS, including the Event Log. Refer to the *AdvaInform Basic Functions User's Guide* for details about the Node Status display.

1.9 User Interface

The user interface is based on the OSF/Motif standard.

For configuration and to get information about your currently stored event data you can use the following features:

- For configuration, the Event Log Configuration display
- For presentation of Event Log status, the Event Log Status display.
- For presentation of Event Log data, the Event Log Presentation display.
- The Database Access window
  It's a window in which can you type in SQL*Plus queries towards the database.
  Through SQL you can get access to configuration data, event log data and event statistics.

All of those displays can be accessed from the IMS menu bar. How to log in to the IMS menu is described in the *AdvaInform Basic Functions User's Guide*.

The first three of those displays in turn have a number of sub-menus.

For a detailed description of the Event Log displays and how to use them, please refer to Chapter 3, Configuration/Application Building and Chapter 4, Run-time Operation in this guide.

Besides those interfaces, included in IMS, you can use the tools provided by the AdvaInform User API, together with for example X-window programming, to build your own interfaces.

Chapter 2 Installation

2.1 Site Planning Environment

For details related to Advant Station hardware (including the RTA board), refer to the *Advant Station 500 Series IMS User's Guide* and the *Advant Station 5xx Hardware User's Guide.*

2.2 Setup

2.2.1 Hardware

For details regarding the hardware, refer to the *Advant Station 500 Series IMS User's Guide* and the relevant *Advant Station 5xx Hardware User's Guide.*

2.2.2 Software installation and removal

Generally, the AdvaInform Event Log software is loaded onto the Advant Station at the factory prior to delivery. Therefore, you generally do not have to load the software.

If you, for some reason, have to install or remove the Event Log software, refer to the *Advant Station 500 Series IMS User's Guide* for instructions.

There are two licenses for AdvaInform Event Log. The basic license provides you with a storage capacity of 100 000 events. The larger license support 1 000 000 events.

NOTE

If you want to upgrade from an ordinary Event Log DB size to the large size you have to contact ABB for help.

2.3 Shut-down Procedures

The AdvaInform Event Log run time environment is automatically stopped when the Advant Station 500 Series IMS is stopped. This procedure is covered in the *Advant Station 500 Series IMS User's Guide*.

2.4 Start-up Procedures

The AdvaInform Event Log run time environment is automatically started as part of the Advant Station 500 Series IMS start-up. This procedure is covered in the *Advant Station 500 Series IMS User's Guide*.

When you use AdvaInform Event Log on an IMS, the Event Log menu is activated from the IMS menu. How to log in to IMS and how to open the Event Log menu is described in the *AdvaInform Basic Functions User's Guide*.

2.5 Product Verification

Open the Event Log Configuration window as described in Section 3.3, Application Start-up. From this window, choose Help - On Version from the Help menu. Verify that the version corresponds to the delivery information. Choose Exit from the File menu to close the window.

Also, refer to the *AdvaInform Basic Functions User's Guide*, chapter 2 and 4, for a description of how to use the System Status display to verify that your Event Log option is up and running.

Another tool that can be used to verify that your Event Log is running properly is the System Message display. Refer to the *AdvaInform Basic Functions User's Guide*, Chapter 3, for a description of how to use the System Message display. If everything is ok, there shall not be found any error messages.

Finally, once you have started event logging the Event Log Status display gives details on the event storage and the state of each Event Log.

Chapter 3 Configuration/Application Building

3.1 Design Considerations

This section reminds you about what to consider before you start configuring your AdvaInform Event Log option. So, please read this section carefully before you start configuring. It might help you to avoid some unpleasant surprises, when the Event Log is already being used.

Answer the following questions and consider the hints:

- Identity number has to be set the very first time you configure an event log.
  Decide what numbers to be set for concerned nodes. Section 3.5, Application Procedures gives you more information about this.
- Decide from which Advant Station 500 Series (IMS and/or OS) and/or MasterView 850/1 nodes your Event Log is supposed to get event log data.
  Remember that you can only use the same data source once in one IMS. See Chapter Chapter 3.5.1, Configuration/Application Building for more information.
  - For those nodes - decide if, and in that case, which *process sections* shall be used.
  - Using the RTA-board of your own node is the recommended way for an IMS on a control network.
- If your control system generates a lot of events, then you are recommended to use a short request cycle (≤ 60 sec's).
- On a plant network, one IMS can collect data from several control networks.
- Should access to Event Log data in the IMS be enabled from one or more Operator Stations as well?
  If so, refer to the *AdvaInform Basic Functions User's Guide* for a description of how to set up an Operator Station to access an IMS node.
- Is your IMS/Event Log is located in a control network and you do not need process sectioning. We recommend you to configure one event log which is collecting data from the local primary log. Not only will this give you the best possible collection performance, but will also reduce the network traffic.

3.2 Capacity and Performance

See the *Advant Station 500 Series IMS User's Guide* for details on Capacity and Performance.

3.3 Application Start-up

The Event Log main menus are started from the IMS menu.
How to log-in to your IMS and access the IMS menu is described in detail in chapter 3 of the *AdvaInform Basic Functions User's Guide*.

From the menu bar in the IMS menu you first select the AdvaInform pull down menu. In that menu, you will find the Event Log item - select that item. That item in turn has a sub-menu from which you can select the Event Log Configuration or the Event Log Status displays.

For the purpose of configuration - select the Event Log Configuration menu.

The other one, the Event Log Status display, is for the purpose of operation and is described in detail in Section 4.5.1, Event Log Status Display.

3.4 Tutorial

Assume that you have installed your Event Log option in an Advant Station 500 Series IMS and that you have verified that it is running properly (according to Section 2.5, Product Verification in this guide).

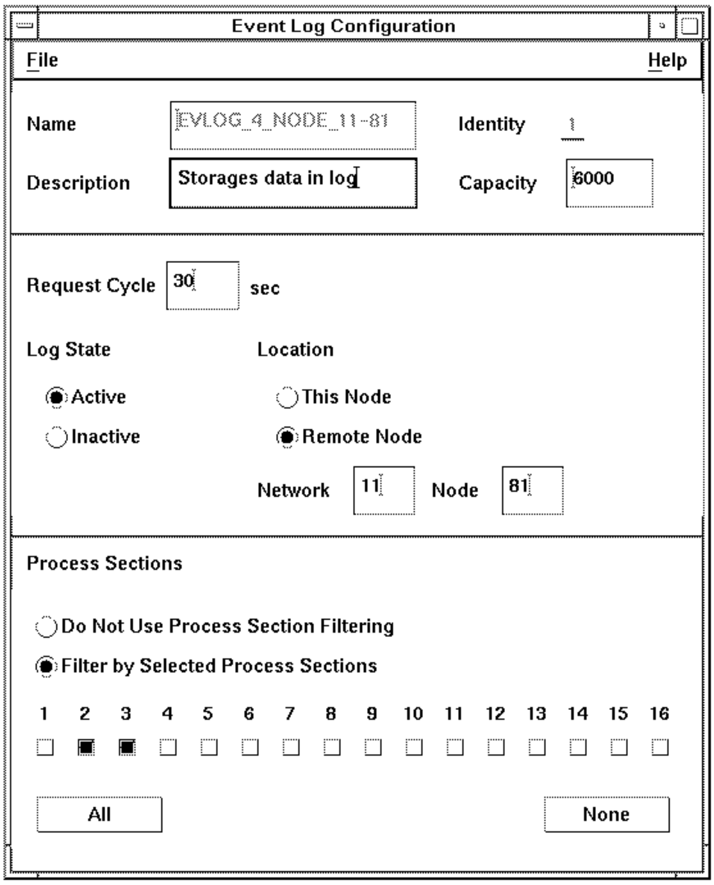
Further on, assume the following applies to this tutorial:

- The Event Log option is running on an IMS connected to a control network.
- To the same control network an Advant Station OS is connected - together with other nodes (MasterView 850/1, MasterPiece and Advant Controller nodes for example).
- You want to use your Event Log in the IMS to retrieve event data from the Advant Station 500 Series OS for storage in Event Logs in the IMS.
- It is the very first time you enter the Event Log Configuration display to configure an Event Log.

Follow the steps below to configure an event log:

Start by logging in as Engineer on the IMS. If you have not logged in before, refer to the *AdvaInform Basic Functions User's Guide* for details about how to do that.

1. Enter the Event Log Configuration display see Figure 3-1. To do that, first select (from the IMS menu) the AdvaInform pull down menu in the menu bar. Then select item Event Log and finally (from it's sub-menu) the item Event Log Configuration. This will bring up the Event Log Configuration display (Figure 3-1) on your screen.



Name EVLOG_4_NODE_11-81

Identity 1

Description Storages data in log

Capacity 6000

Request Cycle 30 sec

Log State

● Active
○ Inactive

Location

○ This Node
● Remote Node

Network 11

Node 81

Process Sections

○ Do Not Use Process Section Filtering
● Filter by Selected Process Sections

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
☐	☒	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Figure 3-1. Event Log Configuration Display

Below you find a description of all of the text fields and buttons in the Event Log Configuration display (Figure 3-1).

Identity	Identity means a unique station identifier. The purpose of the station identifier is to distinguish between different stations, having the Event Log software installed, from each other (this includes the Event Log as well as the SuperView 900 Event Log). The value of the station identifier can be set to a value in the range 1 to 8, which means that up to eight different stations can collect data from one individual primary log.

NOTE

That the station identifier must be set before the configuration can start

Name	The name of the event log. The name can not be typed directly into the Name text-field, but must be chosen from either a list of *already configured* event logs (Open in the File menu) or from a list of *not yet* configured event logs (New in the File menu).
Description	Description can be entered for event logs with event log data storage. For event logs with history event data storage the description is the description of the message log selected. The filed have only read access when history event data storage is used.
Capacity	A warning will be displayed when you create an event log with a capacity that will cause the total amount of needed table space to exceed the configured. If no more table space is left during storage of event data no data will be stored and an error message will appear in System Message.
Log State	The initial state of a log is set to *Inactive*, it means that it has not yet begun to collect data. Conversely, if the log state is set to *Active*, the log starts collecting data when the configuration data is saved. This means that an event log will be active or inactive when the configuration data is saved depending on which radio button you have clicked on.

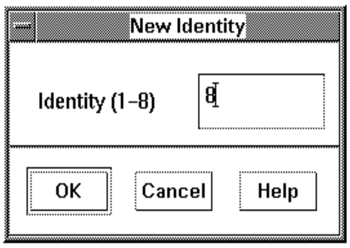
Location	The network and node number of a MasterView 850/1, Advant Station 500 Series OS or IMS from where event data is to be collected. If you select “This Node”, the “Network”- and “Node” fields are automatically filled with the network and node number of the IMS node you are working on. If you select “Remote Node”, you have to type in the Network and Node numbers in the Network and Node text fields respectively. **NOTE** You can’t use the same data source (network and node) for two event logs unless you also specify different process sections.
Request Cycle	The Request Cycle is the interval between two consecutive requests for event data from the primary log. The request cycle must be a multiple of 5 sec’s.
Process Sections	A complete process can be divided into different process sections to which individual process signals or objects can be allocated. The process section of an object is represented by a numeric value that ranges from 0 to 16, where the value 0 means that an object is included in all process sections. It is possible to configure an event log so that it collects only event data records that belong to specified process sections. This is done by first pressing the *Filter By Selected Process Sections*-key and then choose a number of process sections as in the figure below.
All	Click on All to set *all* process sections (1 to 16).
None	Click on None to clear *all* process sections (1 to 16).

2. Enter Identity number.

   This number has to be set the *very first time* you enter the configuration display.

   As you can see in the dialog box below, the Identity number can be in the range from 1 to 8. What you should be aware of is that the Identity number has to be *unique*. That means that two IMS nodes having the Event Log option installed *must not* have the same Identity number.

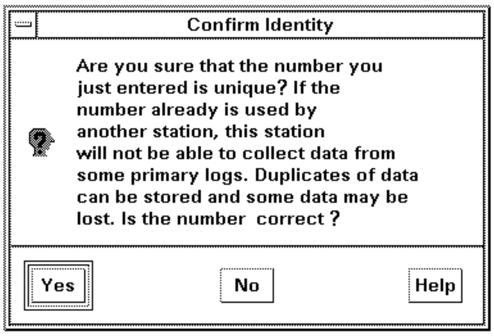
   As we made the assumption that this is the very first time you enter the configuration display you will be asked to set it. The dialog box below will pop up:



Identity (1–8): 8

   Assume that 8 is a unique Identity number for the node concerned -enter that number.

   Then you will be requested to confirm the Identity number you have just entered:



Are you sure that the number you just entered is unique? If the number already is used by another station, this station will not be able to collect data from some primary logs. Duplicates of data can be stored and some data may be lost. Is the number correct ?

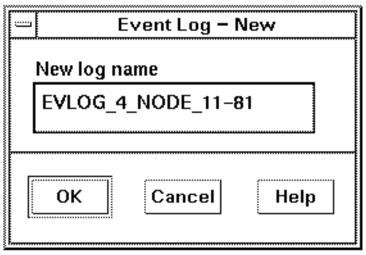
   Click on Yes to confirm that Identity number 8 is correct.

3. Enter Name

   As this is the very first time you enter the configuration display you enter Name as follows:

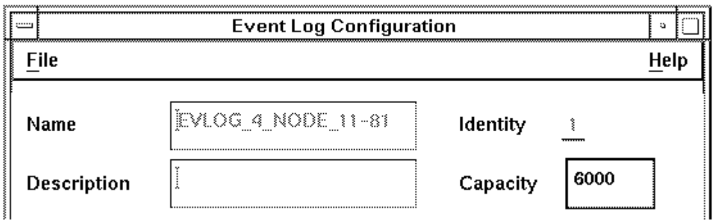
   a. Click on File in the menu bar

   b. Select item New from the pull-down menu



New log name: EVLOG_4_NODE_11-81

c. Enter the name, max 21 characters into the Event Log - New dialog box that pops up.

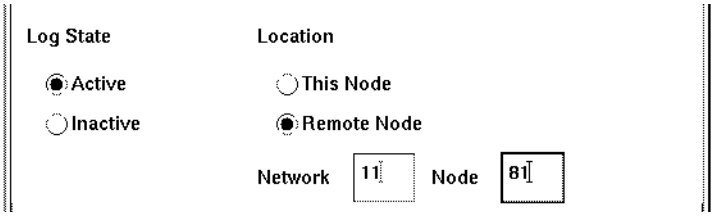


Name: EVLOG_4_NODE_11-81
Identity: 1
Description:
Capacity: 6000

Now you will see the Name field display the name you entered.

Capacity must be entered. If no more table space is left during storage of event data no data will be stored and an error message will appear in System Message and all logs with event log data storage will be deactivated.

4. Enter data for Location



Log State
● Active
○ Inactive

Location
○ This Node
● Remote Node
Network: 11
Node: 81

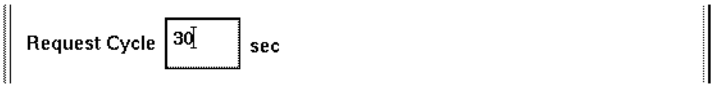
Location means the location of the node where the primary event log resides. Do the following steps:

a. Click on the Remote Node radio button

b. Set Network to 11 (move the pointer over the Network field, click the mouse left button and type 11)

c. Set Node to 81

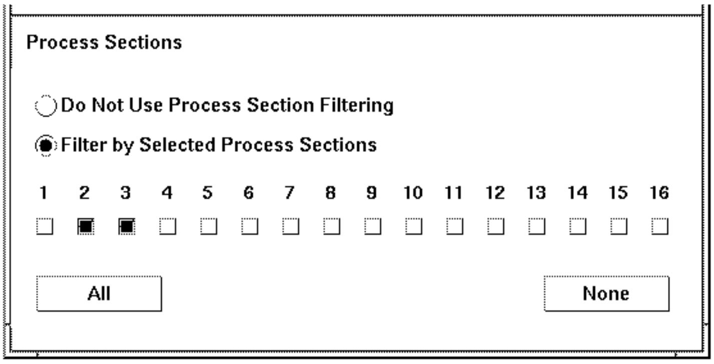
5. Enter data for Request Cycle



Request Cycle: 30 sec

Suppose you want the IMS to request event data each 30 seconds. To specify that, move the pointer over the Request Cycle field, click the left button and type 30.

6. Enter data for Process Sections



Process Sections

○ Do Not Use Process Section Filtering
● Filter by Selected Process Sections

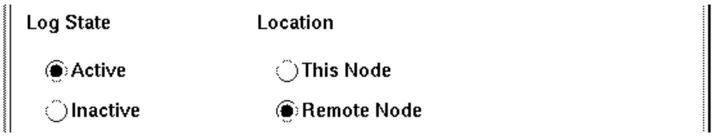
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
☐	☒	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Assume that you are only interested in event data related to Process Sections 2 and 3. Specify that in the following way:

a. Click on radio-button Filter by Selected Process Sections

b. Click on buttons 2 and 3

7. Set Log State to Active



Log State
● Active
○ Inactive

Location
○ This Node
● Remote Node

To set it active, click on the Active button below the Log State label.

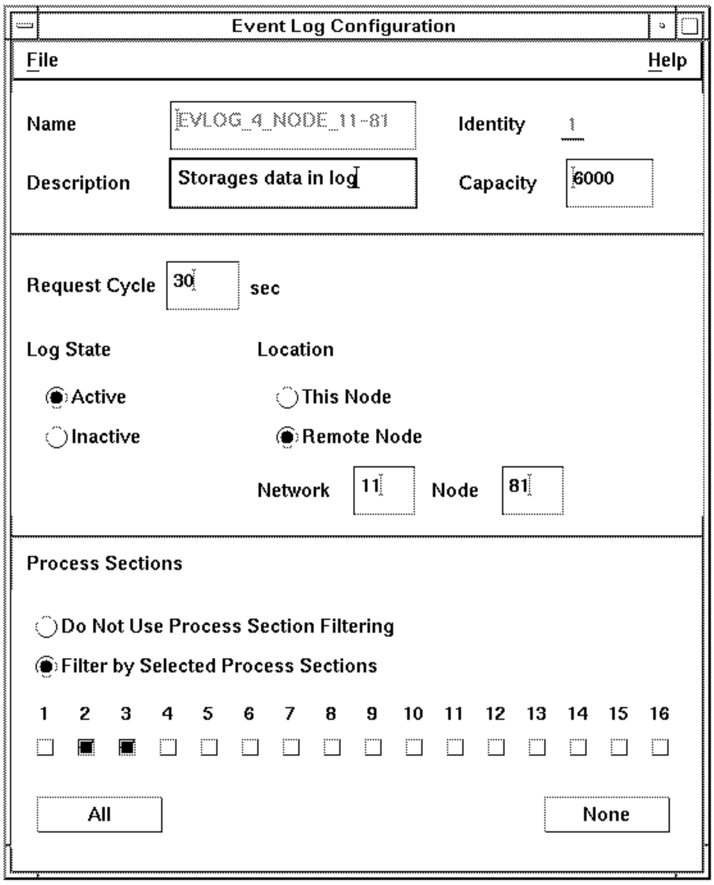
This way, the Event Log will start requesting data from the primary event log as soon as you save the configuration data.

As you set the Log State to Active the Event Log will now start requesting data from the primary event log in the OS with a cycle of 30 sec's.

3.5 Application Procedures

The tutorial in Section 3.4, Tutorial, shows a specific example - with specific values and names. However, that means that not all configuration alternatives have been described. The purpose of this section is to describe the alternatives not covered by the tutorial - not as examples but in general.

3.5.1 Event Log Configuration



Name EVLOG_4_NODE_11-81

Identity 1

Description Storages data in log

Capacity 6000

Request Cycle 30 sec

Log State

● Active
○ Inactive

Location

○ This Node
● Remote Node

Network 11 Node 81

Process Sections

○ Do Not Use Process Section Filtering
● Filter by Selected Process Sections

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
☐	■	■	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Figure 3-2. Event Log Configuration Display

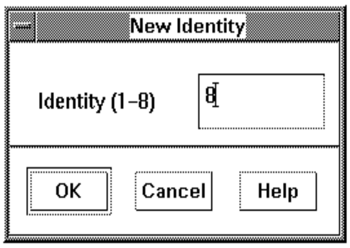
To enter the Event Log Configuration display (Figure 3-2), first select the AdvaInform pull down menu in the menu bar on the IMS menu. Then select item Event Log and finally item Event Log Configuration. This will bring up the Event Log Configuration display (below called the Configuration display) on your screen.

Identity number.

The *very first time* you enter the Configuration display you will be asked to set the Identity number for your IMS. This means that for each IMS, having Event Log installed, this has to be done the first time. No configuration is allowed unless the Identity number has been defined.

If the Identity number already has been set it will show up in the uppermost input field on the Event Log Configuration display.

Assume that this is the very first time you enter the configuration display. Then the dialog box below will pop up:


New Identity

Identity (1–8) 8

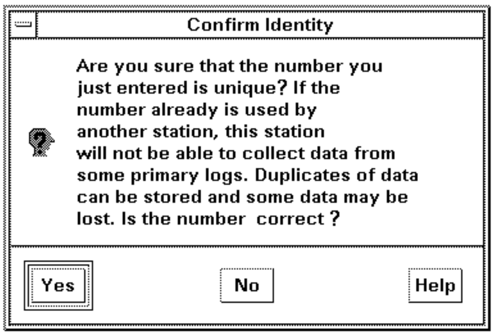
As you can see in the dialog box, the Identity number can be in the range from 1 to 8.

If you have several IMS, or SuperView 900 nodes, with the Event Log option installed, you have to make sure that *each* one has its own *unique* (within the system) Identity number defined for them. What is more, the Identity number has to be specified (for the node you are configuring) before you enter any other configuration data.

For example, this means that two IMS nodes having the Event Log option installed *must not* have the same Identity number.

If the entered number, 8 in the figure above, is not unique, the IMS will not be able to collect data correctly from a primary log in an OS if another IMS, with the same Identity number, collects event data from the same OS or MasterView 850/1.

As its very important that unique Identity numbers are set. You will be requested to confirm the Identity number you have entered:


Confirm Identity

Are you sure that the number you just entered is unique? If the number already is used by another station, this station will not be able to collect data from some primary logs. Duplicates of data can be stored and some data may be lost. Is the number correct ?

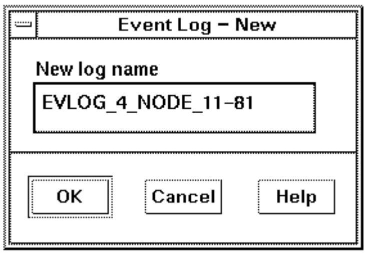
Click on Yes to confirm that Identity number you have typed in (8 in this case) is unique.

Enter Name

You enter Name as follows:

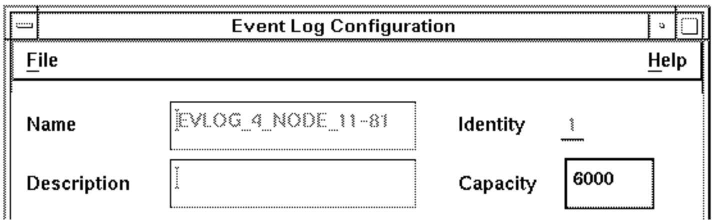
a. Click on File in the menu bar

b. Select item New from the pull-down menu



New log name: EVLOG_4_NODE_11-81

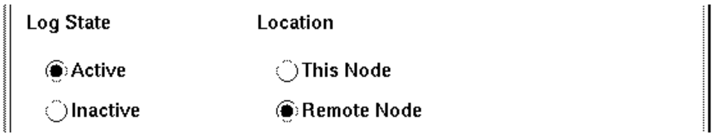
c. Enter the name, max 21 characters into the Event Log - New dialog box that pops up.



Name: EVLOG_4_NODE_11-81
Identity: 1
Description:
Capacity: 6000

Now you will see the name field display the name you entered.

Data for Location



Log State
● Active
○ Inactive

Location
○ This Node
● Remote Node

Location means the location of the node where the primary event log resides. That node can be a MasterView 850/1, an Advant Station 500 Series OS, the IMS where the Event Log is installed, or another IMS.

NOTE

You can not use the same data source (network and node) to two events logs unless you also specify different process sections.

There are two radio buttons below the Location label "This Node" and "Remote Node". "This Node" means the node where the Event Log is installed and "Remote Node" means another node than that one. Do the following steps to specify the Location:

a. Click on Remote Node or This Node

b. If you have selected "Remote Node", click in the Network field and type the network number

c. Likewise, if you have selected "Remote Node", click in the Node field and type the node number

Data for Request Cycle

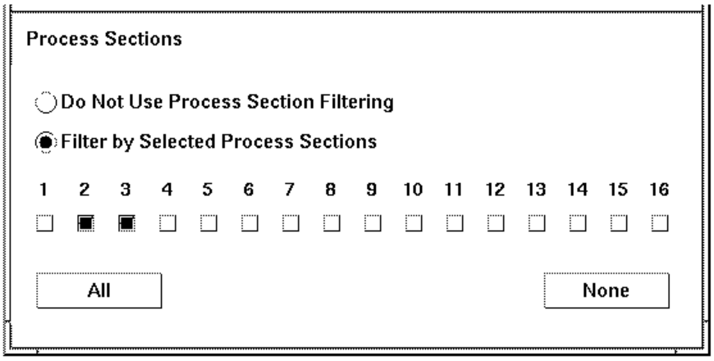
Request Cycle 30 sec

Request Cycle means the time between two consecutive requests for event data sent to the node where the primary event log resides.

Note that the time interval you enter must be a multiple of 5 sec’s.

Also have in mind that the shorter time you specify the more impact on the load on the IMS.

Data for Process Sections



Process Sections

○ Do Not Use Process Section Filtering

● Filter by Selected Process Sections

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
☐	☒	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

A process in a plant can be separated into different *process sections* to which individual process objects belong. The reason for that is mainly that an operator operating and supervising a certain part of the plant should not be confused by information that is of none or little interest to him.

Each process section is identified by a number ranging from 0 to 16. The value 0 is used to denote an object is a part of all process sections.

To specify filtering do as follows:

a. Click on radio button Filter by Selected Process Sections

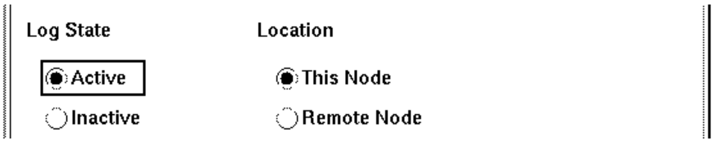
b. Click on the buttons below the process section numbers you want to get event data from.

If you for some reason want to clear all the process sections you have selected - click on the None bottom. If you want to select all of the 16 sections - click on the All button.

NOTE

The collection of data from the specified process sections can only take place if the primary log is sectioned. If not, the Event Log software will ignore the process section attribute and collect every event log data record.

Log State setting



Log State

● Active

○ Inactive

Location

● This Node

○ Remote Node

The initial state of a log is inactive, which means that it has not yet begun to request for event data. Conversely, if the log state is set to active, the log is collecting data. However, note that an event log will be activated or deactivated when the configuration is *saved.*

To set it active or inactive, click on the Active and Inactive button respectively.

This field will not be updated if log state is changed from the status display, unless you open the log again.

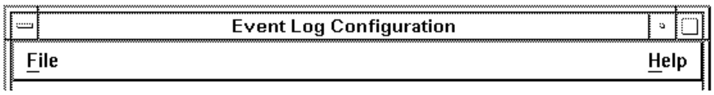
As you set the Log State to Active and save the Event Log will now start requesting data from the primary event log in the MasterView 850/1, Advant Station 500 Series OS or IMS with the request cycle you have specified.

3.6 Configuration/Application Building Menus

This is to be regarded as a *reference* section. That means that it will describe each menu - from top-to-bottom - regarding text fields, push-buttons, restrictions (is any), ranges, rules for data and all other issues of interest.

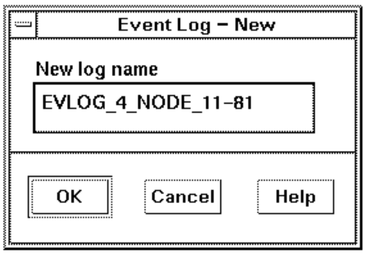
This section can be regarded a quick help for experienced users who knows about the Event Log configuration tool but not necessary remembers for example the limitations etc. for each of the items in the menus.

The menu bar in the *Event Log Configuration* display is shown in figure below.



File has the following items in its pull-down menu:

New	If you select New this will cause a dialog box named New (see figure below) to appear in this you enter the event log name which must be unique.

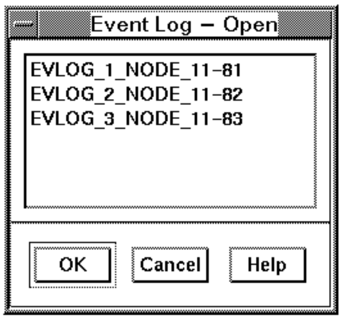


New log name

EVLOG_4_NODE_11-81

Open If you select Open this will cause a dialog box named Event Log - Open to appear - see figure below. The dialog box has a scrolled list from which you can select the Event Log you want to modify or just take a look at what Event Logs there are.

That means that the Event Log - Open dialog box lists *all the existing* Event Logs.

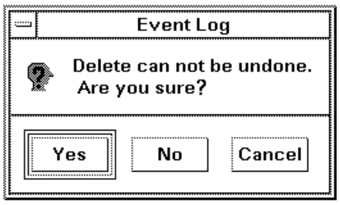


EVLOG_1_NODE_11-81
EVLOG_2_NODE_11-82
EVLOG_3_NODE_11-83

Save Select save when you are satisfied with the Event Log you have configured. After you have saved the Save item will be dimmed.

Delete Select Delete if you want to remove the current Event Log.

If you select Delete a dialog box will pop up that asks you to confirm the delete request - see figure below.
Note that when you delete an event log all event data will be lost, if you use event log storage. On the other hand if message logs are used for storage no data will be deleted from them.



Delete can not be undone.
Are you sure?

Change Identity Select Change Identity to change the station identity number. Same procedure as described in tutorial, page 3-12.

Exit Select Exit to close the Event Log Configuration display.

Then, let's take a look at the items in the Help menu:

OnHelp	A display will pop up that tells you how to use Help.
OnWindow	A display will pop up that gives you information about the Event Log Configuration display.
OnKeys	Provides information on how to use the key board.
OnIndex	Provides information about different topics in alphabetical order. As an example, you can search for information about Log Capacity.
OnVersion	Presents information about the version of the Event Log software you are using right now.

Chapter 4 Run-time Operation

4.1 Product Operation

After having carried out the configuration (according to Chapter 3, Configuration/Application Building in this guide) required for your Event Log application you can access the Event Log run-time displays from any of the following terminals:

- An IMS console
- A X terminal
- A PC emulating X, or
- An Advant Station 500 Series OS.
  The *AdvaInform Basic Function User's Guide* describes how to configure an Advant Station 500 Series OS to open a window towards an Advant Station 500 Series IMS.

In the next section you will find a summary of what run-time (or presentation) tools there are available to you for this purpose.

4.2 Operating Overview

There are three different user interfaces available to you in run-time. All three are accessible from the IMS-menu:

- The Event Log Status display

  This display lets you supervise, activate and deactivate the event logs you have configured. You can find out whether the event log is active or not and also some other information that might be of interest to you - for example, to monitor the amount of events generated in different control networks (if the IMS/Event Log is located in a plant network).

- The Event Log Presentation display

  This is the primary tool you can use for presentation of the event logs currently stored. It presents all information on an event log, one at a time.

- The Database Access window - Access via SQL*Plus

  You can access event logs using the view `evlog`. Note that SQL*Plus (the tool you use in the Database Access window) is a part of the AdvaInform Basic Functions.

All interfaces will be closer described in the following sections.

4.3 Run-time Tutorial

In this section there are two tutorials that help you access and view data for any of the event logs currently stored:

- Access via the The Event Log Presentation display
- Access via SQL*Plus from a terminal window.

You will not find any tutorial for the The Event Log Status display as it is fairly straight forward. What is said in Section 4.4, Operating Instructions is sufficient to make you ready to use it.

4.3.1 Using the Event Log Presentation Display

In Section 4.2, Operating Overview, you were told that you can use the Event Log Presentation display to access the currently stored event logs.

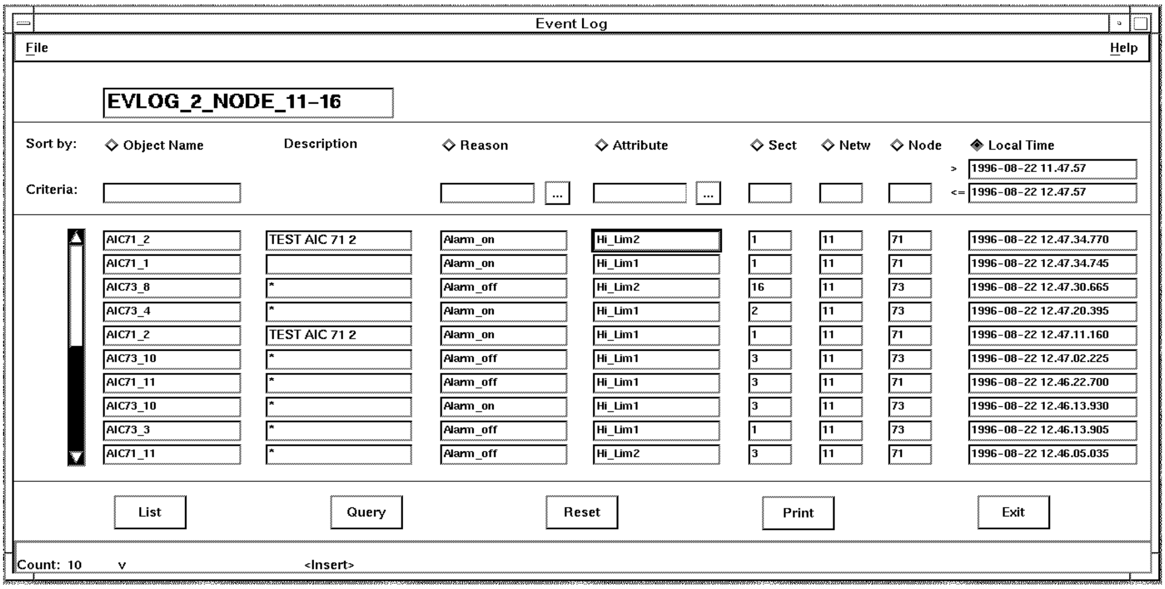
Below is a step-by-step instruction how to do that:

1. Bring up the IMS menu on your screen

   If this is the first time you use your IMS, please refer to Chapter 3 in the *AdvaInform Basic Functions User's Guide* for a description how to log in to the IMS menu.

2. Bring up the Event Log Presentation display

   Click on Station in the menu bar (on the IMS menu). Then click on the Object Presentation item in the pull-down menu and finally click on Event Log in its cascade menu. This will bring up the Event Log Presentation display on your screen:



EVLOG_2_NODE_11-16

Sort by: ◇ Object Name, Description, ◇ Reason, ◇ Attribute, ◇ Sect, ◇ Netw, ◇ Node, ◆ Local Time

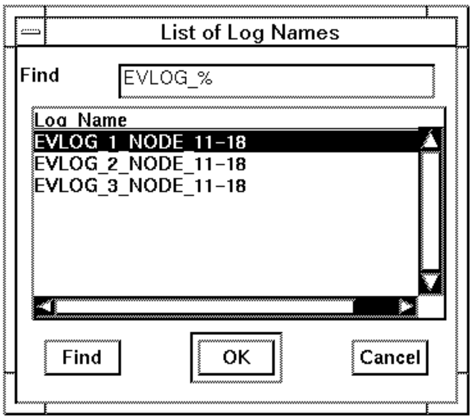
Criteria: Local Time > 1996-08-22 11.47.57, <= 1996-08-22 12.47.57

Object Name	Description	Reason	Attribute	Sect	Netw	Node	Local Time
AIC71_2	TEST AIC 71 2	Alarm_on	Hi_Lim2	1	11	71	1996-08-22 12.47.34.770
AIC71_1		Alarm_on	Hi_Lim1	1	11	71	1996-08-22 12.47.34.745
AIC73_8	*	Alarm_off	Hi_Lim2	16	11	73	1996-08-22 12.47.30.665
AIC73_4	*	Alarm_on	Hi_Lim1	2	11	73	1996-08-22 12.47.20.395
AIC71_2	TEST AIC 71 2	Alarm_on	Hi_Lim1	1	11	71	1996-08-22 12.47.11.160
AIC73_10	*	Alarm_off	Hi_Lim1	3	11	73	1996-08-22 12.47.02.225
AIC71_11	*	Alarm_off	Hi_Lim1	3	11	71	1996-08-22 12.46.22.700
AIC73_10	*	Alarm_on	Hi_Lim1	3	11	73	1996-08-22 12.46.13.930
AIC73_3	*	Alarm_off	Hi_Lim1	1	11	73	1996-08-22 12.46.13.905
AIC71_11	*	Alarm_off	Hi_Lim2	3	11	71	1996-08-22 12.46.05.035

Count: 10 v <Insert>

3. Select the event log you want to take a look at

   First click on the List button at the bottom of the display to bring up the dialog box below on your screen:



List of Log Names

Find: EVLOG_%

Log Name
EVLOG_1_NODE_11-18
EVLOG_2_NODE_11-18
EVLOG_3_NODE_11-18

   Select the event log you are interested in (the selected log is high-lighted in the dialog box). Then click on the OK button (or press Return). This will update the Event Log Presentation display you already have on your screen. As you haven't yet specified neither another sorting nor any filtering criteria, all of the stored event records will be visible.
   If there are more records than there is room for on one screen, you can use the scroll bar.

4. Specifying an alternative sorting

   If you want the event records to be sorted in another way than the default one (by Local Time) you can achieve this by clicking on any of the "Sort by" radio-buttons available in the Event Log Presentation Display. You can use only *one* of the sorting items at a time.

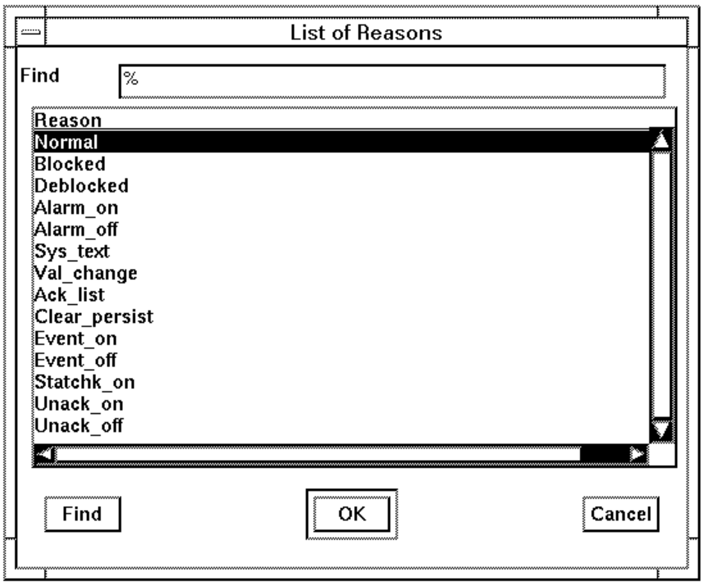
   Suppose you want to sort on Network instead of Object Name. Then first click on the Netw radio-button and then on the Query button at the bottom of the display.
   This will cause the event records to be presented in the requested order - that is, sorted by network.

5. Choosing other criteria

   Suppose you want to use the Reason criteria to extract the currently stored event log records. That is, you are just interested in looking at a *specific* Reason for the event. Event records with other Reasons than the one you specify will not appear.
   Assume that the Reason you are interested in is Alarm_on - a rather normal situation.

To achieve that, do as follows:

a. Click on the button next to the Reason text field. This will bring up the List of Reasons dialog box on your screen:



List of Reasons

Find: %

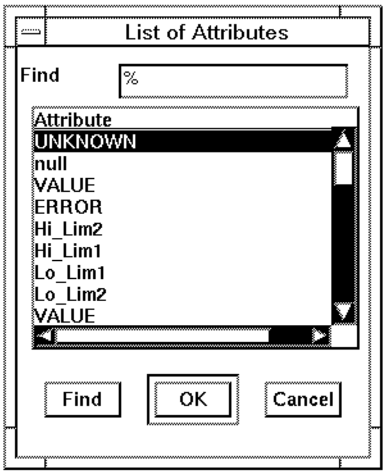
Reason
Normal
Blocked
Deblocked
Alarm_on
Alarm_off
Sys_text
Val_change
Ack_list
Clear_persist
Event_on
Event_off
Statchk_on
Unack_on
Unack_off

b. Select the Alarm_on Reason from the list and then click on the OK button. This will take you back to the Event Log Presentation display.

c. Click on the Query button at the bottom of the Event Log Presentation display.

You will now see the same event records as before but, probably, not as many as before (provided that there exist other reasons than the one you just specified).

To specify Attribute as criteria, the handling is analogue to the one described for Reasons. Instead of from the List of Reasons dialog box you select your sorting item from the List of Attributes dialog box:



List of Attributes

Find: %

Attribute
UNKNOWN
null
VALUE
ERROR
Hi_Lim2
Hi_Lim1
Lo_Lim1
Lo_Lim2
VALUE

6. Specifying search criteria

   Until now all of the stored event records have been fetched and available to you. In some cases you may prefer to look at a sub-set of the records in an event log. You can achieve this by filling in one or more of the Criteria fields in the Event Log Presentation display.

Example 1

Suppose you want to look at the event records for all objects containing the string pattern "pressure" in their names. Do as follows:

a. Type in %pressure% in the Object name field

b. Click on the Query button at the bottom of the display

You will now see a sub-set of the previous event records, that is, those containing the string "pressure", on your screen.

Example 2

Suppose you want to look at all the events that occurred between 8 and 9 o'clock on the 27:th of April 1995. Do as follows:

a. Type in 1995-04-27 08.00.00 and 1995-04-27 09.00.00 in the upper and lower Local Time fields respectively

b. Click on the Query button at the bottom of the display

You will now see a sub-set of the complete set of events, that is, those which occurred within the specified time interval.

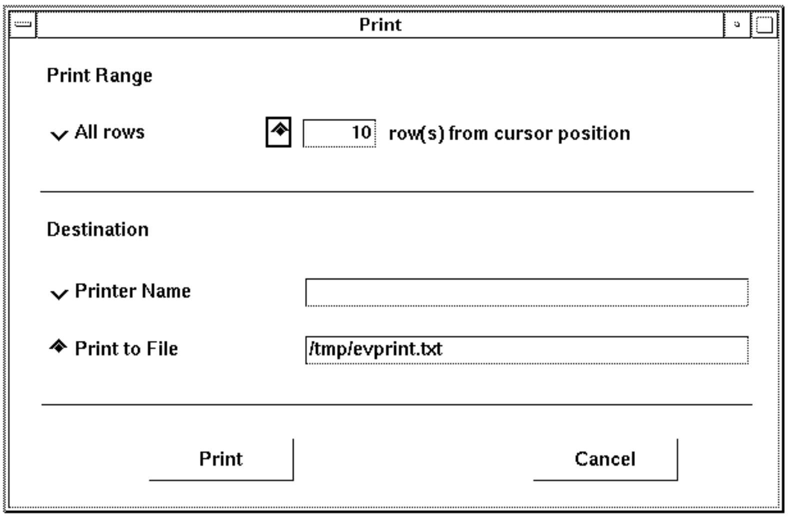
To achieve good performance on your queries, follow these guidelines:

- Use small time intervals. The number of rows that fit the search condition decides the time to perform the query.
- If object name is used as condition use the object name without any % if possible.
- Specify as many search conditions as possible. Reason, attribute, network, node etc.

Printing event data

Below is a step-by-step instruction how to print out event data.

1. Press the “Print” button in the presentation display, the dialog below is displayed.



Print Range

All rows

10 row(s) from cursor position

Destination

Printer Name

Print to File /tmp/evprint.txt

Figure 4-1. Print dialog window

2. Select Print Range:
   - All rows - Print all rows retrieved in the query.
   - .. row(s) from cursor position- Print the number of rows you specify in the input field from cursor position and downwards.
3. Select destination:
   - Printer Name - The default command is `lp = line printer`. Only the printer destination for ascii print out may be entered.
   - Print to File - “/tmp/evprint.txt” is default, but path and file name can also be entered.
4. Press “Print” button.

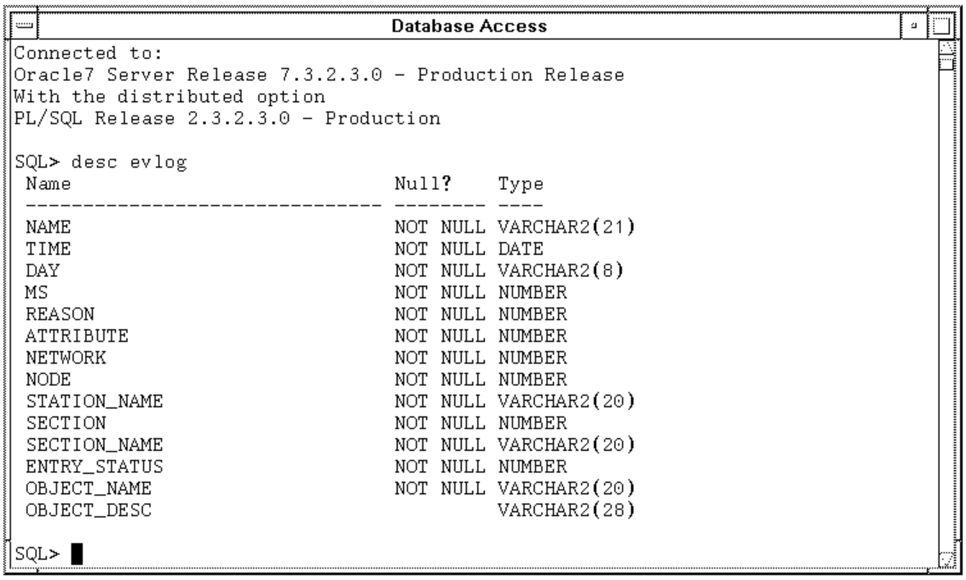
4.3.2 Using SQL*Plus

4.3.2.1 Accessing Event Log data

Another way to access event log data is to use SQL queries from the Database Access window. Read the below tutorial to learn how to perform (it is assumed that you have the IMS menu on screen):

1. Enter the Database Access window
   Select the Database Access item in the Station pull down menu (in the IMS menu bar).

2. Get a description of the `evlog` view
   Type in SQL query `describe evlog` according to the figure below:



```
Connected to:
Oracle7 Server Release 7.3.2.3.0 - Production Release
With the distributed option
PL/SQL Release 2.3.2.3.0 - Production

SQL> desc evlog
 Name                            Null?    Type
 ------------------------------- -------- ----
 NAME                            NOT NULL VARCHAR2(21)
 TIME                            NOT NULL DATE
 DAY                             NOT NULL VARCHAR2(8)
 MS                              NOT NULL NUMBER
 REASON                          NOT NULL NUMBER
 ATTRIBUTE                       NOT NULL NUMBER
 NETWORK                         NOT NULL NUMBER
 NODE                            NOT NULL NUMBER
 STATION_NAME                    NOT NULL VARCHAR2(20)
 SECTION                         NOT NULL NUMBER
 SECTION_NAME                    NOT NULL VARCHAR2(20)
 ENTRY_STATUS                    NOT NULL NUMBER
 OBJECT_NAME                     NOT NULL VARCHAR2(20)
 OBJECT_DESC                              VARCHAR2(28)

SQL> █
```

This will present to you a list of the data items (that is the columns in the IMS relational database view `evlog`) which are available in the `evlog` view.

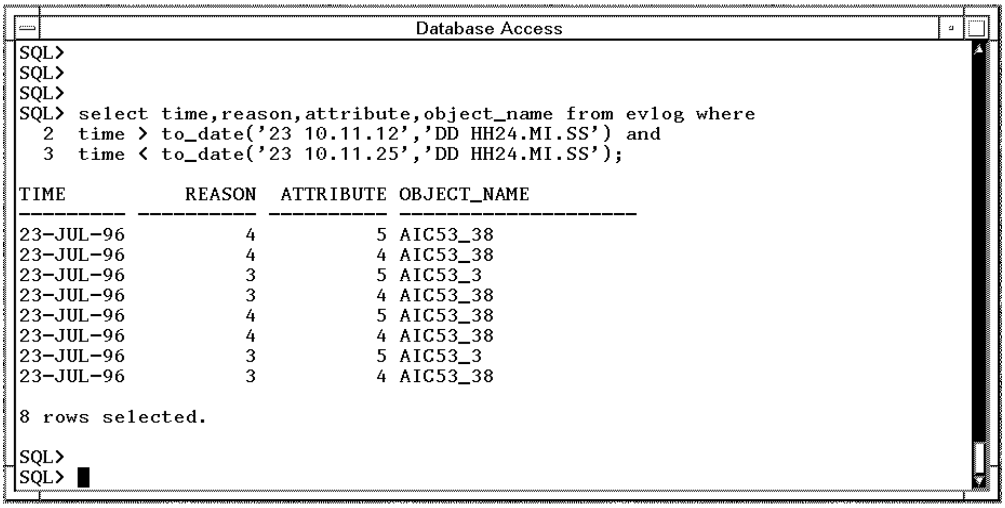
Column Name	Description
NAME	Name of the event log
TIME	Time and/or date depending on the oracle nls_date_format variable. This can be changed using the command:(example) SQL> alter session set nls_date_format=’YYYY-MM-DD 24HH.MI.SS’;
DAY	Day of the event on the format: ‘YYYYMMDD’.
MS	Milli Seconds
REASON	Reason for the event. Refer to Appendix A for a description of defined Reasons.
ATTRIBUTE	Attribute for the event. Refer to Appendix A for a description of defined Attributes.
NETWORK	Network number from which event originate.
NODE	Node number from which event originate.

Column Name	Description
STATION_NAME	Name of the station from which the event originate. Default is ProcSta_<network>_<node>.
SECTION	Process section. A number in the interval 0 to 16.
SECTION_NAME	Default name is ProcSec_<network>_<node>.
ENTRY_STATUS	Indicates uncertain time-tag (1). Otherwise 0.
OBJECT_NAME	Name of object which caused event.
OBJECT_DESC	Object description. The description is fetched separately for each object, maximum two descriptions/minute. This means that it may take some time before all descriptions have been stored into the database. If the object has no description the field will be left blank and if the object can not be resolved this will be indicated by a *. For the objects with a * indication a new attempt to fetch the description can be made using the utility program "evutil" see Chapter Chapter 5.5, Maintenance. **NOTE** It may take some time before the object descriptions are stored.

In the next step you will see how to access event log data using the TIME item.

3. Suppose you want to look at all the events that have occurred between two points in time - 15.20.46 and 15.21.16. That means between 20 min's, 46 sec's and 21 min's, 16 sec's past

3 o'clock PM the current day. To achieve that, type in the SQL command in the figure below:



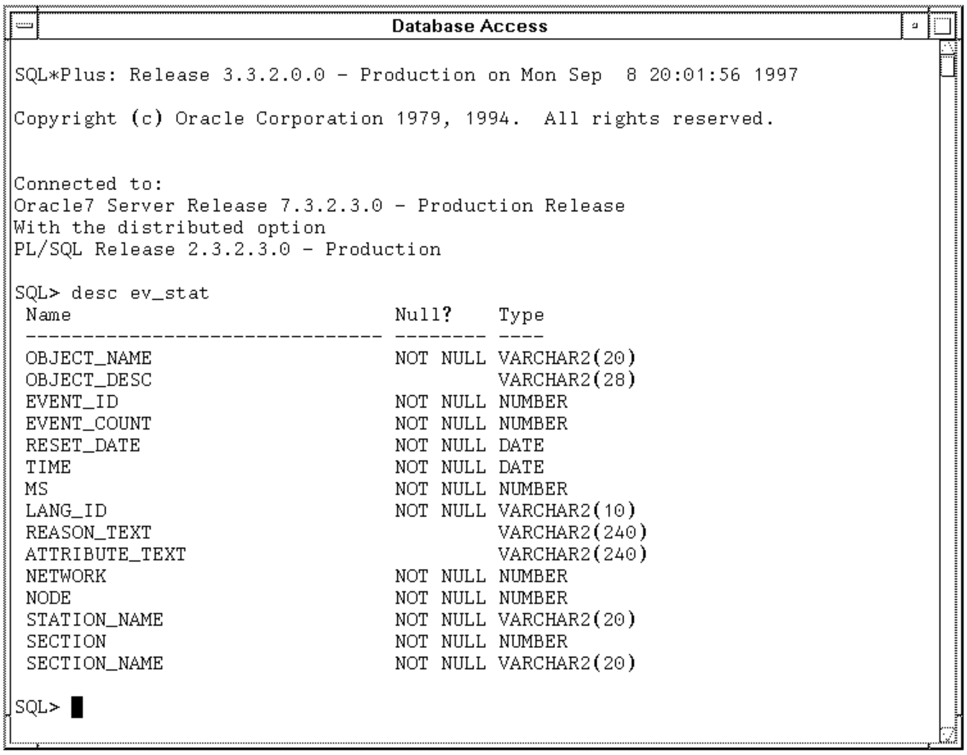
```
SQL>
SQL>
SQL>
SQL> select time,reason,attribute,object_name from evlog where
  2  time > to_date('23 10.11.12','DD HH24.MI.SS') and
  3  time < to_date('23 10.11.25','DD HH24.MI.SS');

TIME          REASON  ATTRIBUTE OBJECT_NAME
--------- ---------- ---------- --------------------
23-JUL-96          4          5 AIC53_38
23-JUL-96          4          4 AIC53_38
23-JUL-96          3          5 AIC53_3
23-JUL-96          3          4 AIC53_38
23-JUL-96          4          5 AIC53_38
23-JUL-96          4          4 AIC53_38
23-JUL-96          3          5 AIC53_3
23-JUL-96          3          4 AIC53_38

8 rows selected.

SQL>
SQL> █
```

The SQL query (in the example) asks for time, reason, attribute, and object name to be fetched and presented for the events that meet the time criteria of the query.

For a description of the figures in the Reason and Attribute columns, refer to Appendix A, Event Reasons and Attributes. For a description of how to use the `to_date` function, refer to the *AdvaInform Basic Functions User's Guide*.

4.3.2.2 Accessing and using event statistics

1. Get a description of the ev_stat view
   Type in SQL query `describe ev_stat` according to the figure below:



```
SQL*Plus: Release 3.3.2.0.0 - Production on Mon Sep  8 20:01:56 1997

Copyright (c) Oracle Corporation 1979, 1994.  All rights reserved.


Connected to:
Oracle7 Server Release 7.3.2.3.0 - Production Release
With the distributed option
PL/SQL Release 2.3.2.3.0 - Production

SQL> desc ev_stat
 Name                            Null?    Type
 ------------------------------- -------- ----
 OBJECT_NAME                     NOT NULL VARCHAR2(20)
 OBJECT_DESC                              VARCHAR2(28)
 EVENT_ID                        NOT NULL NUMBER
 EVENT_COUNT                     NOT NULL NUMBER
 RESET_DATE                      NOT NULL DATE
 TIME                            NOT NULL DATE
 MS                              NOT NULL NUMBER
 LANG_ID                         NOT NULL VARCHAR2(10)
 REASON_TEXT                              VARCHAR2(240)
 ATTRIBUTE_TEXT                           VARCHAR2(240)
 NETWORK                         NOT NULL NUMBER
 NODE                            NOT NULL NUMBER
 STATION_NAME                    NOT NULL VARCHAR2(20)
 SECTION                         NOT NULL NUMBER
 SECTION_NAME                    NOT NULL VARCHAR2(20)

SQL> █
```

   This will present to you a list of the data items (that is the columns in the IMS relational database view ev_stat) which are available in the ev_stat view.

This way you are free to use standard SQL queries to access event log statistics in a way that suites your needs.

Many of the attributes are the same as for the `evlog` view, see above. The specific attributes are described below.

Column Name	Description
EVENT_ID	A unique identity number that Each event has.
EVENT_COUNT	Number of times the event has occurred since it last was reset.
RESET_DATE	Date when EVENT_COUNT last was reset.
LANG_ID	Used for NLS (native language support) of the attribute- and reason texts. One of: ENG,GER,SWE
REASON_TEXT	Reason text with NLS.
ATTRIBUTE_TEXT	Attribute text with NLS.

Event statistics attributes

The ev_stat view has two event statistical data items, EVENT_COUNT and RESET_DATE.

EVENT_COUNT: The total number of occurrences of the event. The event is specified by object name, reason and attribute.

RESET_DATE: The date when EVENT_COUNT last was reset to 0.

Resetting event statistics

It is possible to reset the event statistics: EVENT_COUNT and RESET_DATE.

1. Find out the EVENT_ID for the object name in question.

   ```
   SQL> select event_id from evstat where object_name=' your
   object name';
   ```

2. Type in the following SQL statement:

   ```
   SQL > update eventlog.ev_event set event_count = 0,
   reset_date = SYSDATE where event_id= (one of the rows
   returned from the first query);
   ```

3. `SQL> commit`;

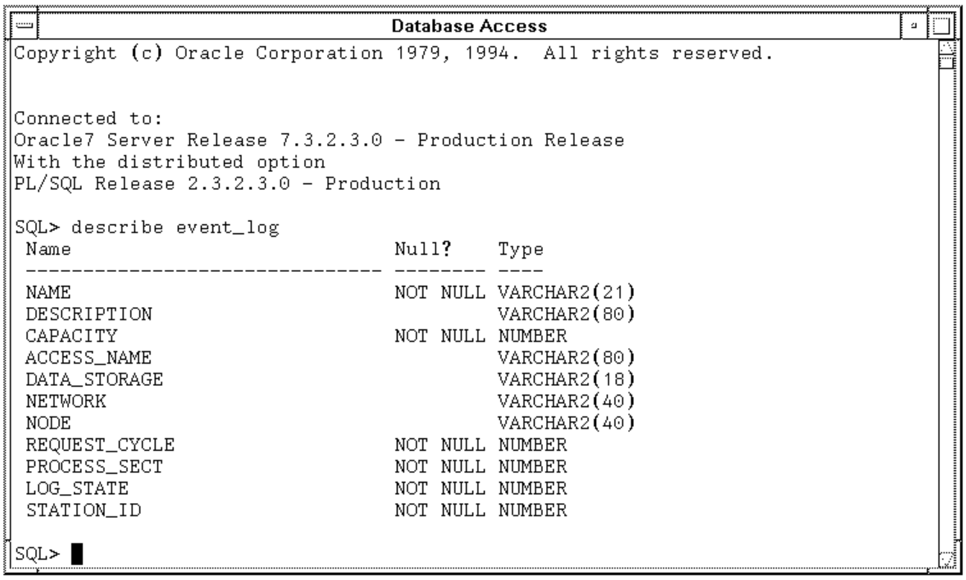
NOTE

If you have redundant storage of events (using two redundant data sources) your statistics will be doubled.

4.3.2.3 Accessing Event Log configuration data

The configuration data for the logs configured can be accessed through the view EVENT_LOG. This can be useful for example when you want to document what logs there are and which nodes and network they operate against. Access configuration data as follows:

1. Get a description of the event_log view
   Type in SQL query `describe event_log` according to the figure below



```
Copyright (c) Oracle Corporation 1979, 1994.  All rights reserved.


Connected to:
Oracle7 Server Release 7.3.2.3.0 - Production Release
With the distributed option
PL/SQL Release 2.3.2.3.0 - Production

SQL> describe event_log
 Name                            Null?    Type
 ------------------------------- -------- ----
 NAME                            NOT NULL VARCHAR2(21)
 DESCRIPTION                              VARCHAR2(80)
 CAPACITY                        NOT NULL NUMBER
 ACCESS_NAME                              VARCHAR2(80)
 DATA_STORAGE                             VARCHAR2(18)
 NETWORK                                  VARCHAR2(40)
 NODE                                     VARCHAR2(40)
 REQUEST_CYCLE                   NOT NULL NUMBER
 PROCESS_SECT                    NOT NULL NUMBER
 LOG_STATE                       NOT NULL NUMBER
 STATION_ID                      NOT NULL NUMBER

SQL> 
```

This will present to you a list of the data items (that is the columns in the IMS relational database view event_log) which are available in the event_log view.

Column Name	Description
NAME	Name of the event log
DESCRIPTION	User defined description of the event log,
CAPACITY	Maximum number of events the log can store.
ACCESS_NAME	The history access name of the message log used for event data storage.
DATA_STORAGE	Event Log (NUL).
NETWORK	Network number from which events are collected.
NODE	Node number from which events are collected. The node is one of: IMS, OS or MasterView
REQUEST_CYCLE	Interval time in seconds that decides how often event data is requested from the target node.

Column Name	Description
PROCESS_SECT	Process section. This number is calculated as: $\sum_{section=0}^{15} section^2$ where section is each process section selected in the Event Log configuration display. The value 0 represents "Process section not used". Example: section 2,4,5 is used => PROCESS_SECT = $2^2 + 4^2 + 5^2$ = = 4 + 16 + 25 = 45
LOG_STATE	A log is either active (=1) or inactive (=0).
STATION_ID	The unique number that identifies each Event Log option.

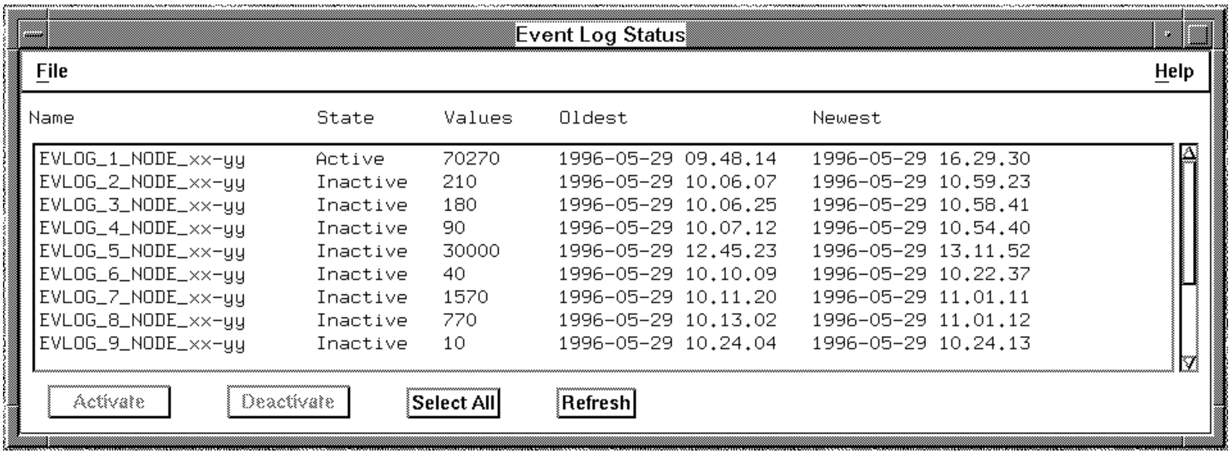
4.4 Operating Instructions

As the operation of the Event Log is fairly straight forward, the descriptions in Section 4.3, Run-time Tutorial and Section 4.5, Run-time Operation Menus is sufficient for a good understanding why this section is not needed in this case.

4.5 Run-time Operation Menus

4.5.1 Event Log Status Display

This section describes all of the menu items, fields and buttons available in the Event Log Status Display.



Name	State	Values	Oldest	Newest
EVLOG_1_NODE_xx-yy	Active	70270	1996-05-29 09.48.14	1996-05-29 16.29.30
EVLOG_2_NODE_xx-yy	Inactive	210	1996-05-29 10.06.07	1996-05-29 10.59.23
EVLOG_3_NODE_xx-yy	Inactive	180	1996-05-29 10.06.25	1996-05-29 10.58.41
EVLOG_4_NODE_xx-yy	Inactive	90	1996-05-29 10.07.12	1996-05-29 10.54.40
EVLOG_5_NODE_xx-yy	Inactive	30000	1996-05-29 12.45.23	1996-05-29 13.11.52
EVLOG_6_NODE_xx-yy	Inactive	40	1996-05-29 10.10.09	1996-05-29 10.22.37
EVLOG_7_NODE_xx-yy	Inactive	1570	1996-05-29 10.11.20	1996-05-29 11.01.11
EVLOG_8_NODE_xx-yy	Inactive	770	1996-05-29 10.13.02	1996-05-29 11.01.12
EVLOG_9_NODE_xx-yy	Inactive	10	1996-05-29 10.24.04	1996-05-29 10.24.13

Figure 4-2. Event Log Status Display

Menu bar

File	Exit	Select Exit to close the display.
Help	OnHelp	Provides information about using Help.
	OnWindow	Provides information specific for the Event Log Status Display.
	OnKeys	Tells you about using the keys to operate the display.
	Index	Gives you information about different topics related to the display.
	OnVersion	Tells you about the current version of the Event Log option.

Text fields

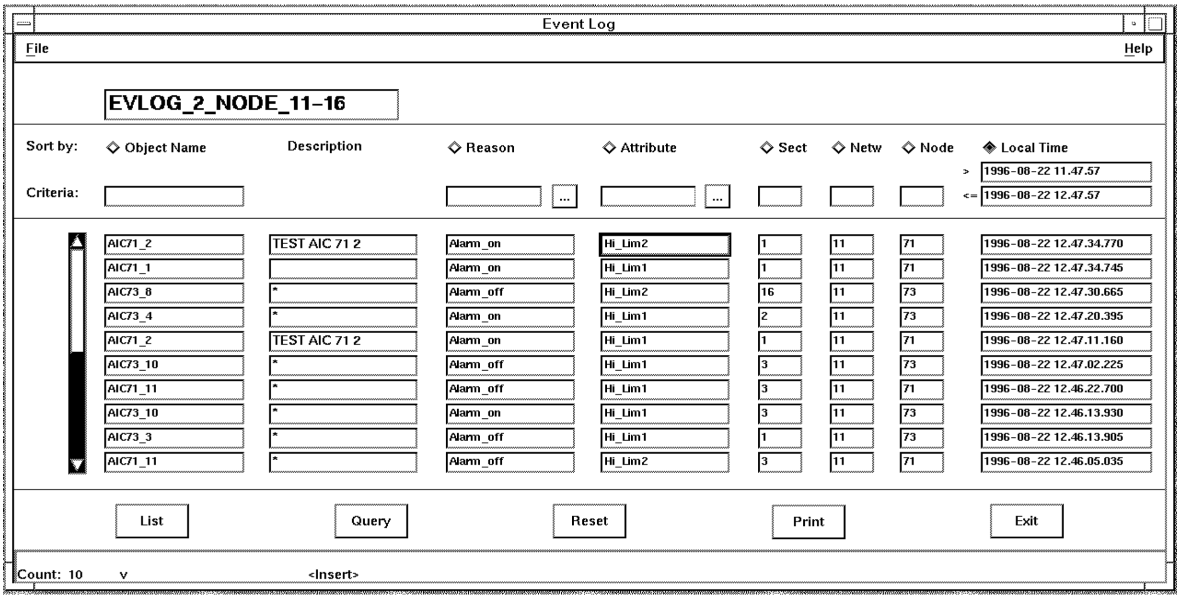
Name	The name of the event log.
State	ACTIVE or INACTIVE.
Values	Number of event log records stored in the Message Log when the display is brought up. Click on the Refresh button to get the current number.
Oldest	Date and time when the oldest event occurred.
Newest	Date and time when the most recent event occurred.

Buttons

Activate	Activate the selected log/logs. Note that the Event Log Configuration display has no automatic refresh so activating from the Status Display will have no effect on it.
Deactivate	Deactivate selected log/logs
Select All	Selects all logs in the Status Display.
Refresh	Click on Refresh to update the displayed information - the Oldest and Newest figures for example. There is an automatic refresh every third minute.

4.5.2 Event Log Presentation Display

This section describes all of the menu items, fields and buttons available in the Event Log Presentation display.



EVLOG_2_NODE_11-16

Local Time > 1996-08-22 11.47.57

Local Time <= 1996-08-22 12.47.57

◇ Object Name	Description	◇ Reason	◇ Attribute	◇ Sect	◇ Netw	◇ Node	◈ Local Time
AIC71_2	TEST AIC 71 2	Alarm_on	Hi_Lim2	1	11	71	1996-08-22 12.47.34.770
AIC71_1		Alarm_on	Hi_Lim1	1	11	71	1996-08-22 12.47.34.745
AIC73_8	*	Alarm_off	Hi_Lim2	16	11	73	1996-08-22 12.47.30.665
AIC73_4	*	Alarm_on	Hi_Lim1	2	11	73	1996-08-22 12.47.20.395
AIC71_2	TEST AIC 71 2	Alarm_on	Hi_Lim1	1	11	71	1996-08-22 12.47.11.160
AIC73_10	*	Alarm_off	Hi_Lim1	3	11	73	1996-08-22 12.47.02.225
AIC71_11	*	Alarm_off	Hi_Lim1	3	11	71	1996-08-22 12.46.22.700
AIC73_10	*	Alarm_on	Hi_Lim1	3	11	73	1996-08-22 12.46.13.930
AIC73_3	*	Alarm_off	Hi_Lim1	1	11	73	1996-08-22 12.46.13.905
AIC71_11	*	Alarm_off	Hi_Lim2	3	11	71	1996-08-22 12.46.05.035

Count: 10 v <Insert>

Figure 4-3. Event Log Presentation Display

Menu bar

File	Exit	Select Exit to close the display.
Help	Keys	Provides information about using the keyboard keys.
	display Error	If an error occurs, that is you get a message on the bottom line of the display, you can get more information if you select the display Error item.

Fields (Criteria)

Object Name	There are three alternatives for the Object Name: - blank, means that *all* object names are presented - a specific object name, for example *pressure.12.3*. Only events related to this specific object will be displayed. - a string pattern (wild-card), for example *%press%*. Only objects who's names contains this pattern will be presented.
Object Description	Object description, presentation only.The description is fetched separately for each object, maximum two descriptions/minute. This means that it takes some time before all descriptions can be viewed from the Presentation Display. If the object has no description the field will be left blank and if the object can not be resolved this will be indicated by a *. For the objects with a * a new attempt to fetch the description can be made using the utility program "evutil" see Chapter Chapter 5.5, Maintenance. **NOTE** It takes some time before the object descriptions appear in the Presentation Display.
Reason	Reason for the event. Refer to Appendix A for a description of defined Reasons. Click on the button next to the field to get a list of the available Reasons.
Attribute	Attribute for the event. Refer to Appendix A for a description of defined Attributes. Click on the button next to the field to get a list of the available Attributes.
Sect	Process section number.
Netw	Network number.
Node	Node number.
Local Time	Local time in format: YYYY-MM-DD HH.MM.SS. *Example:* 1995-05-22 17.15.00, means 15 min. past 5 PM on the 22nd of May 1995.

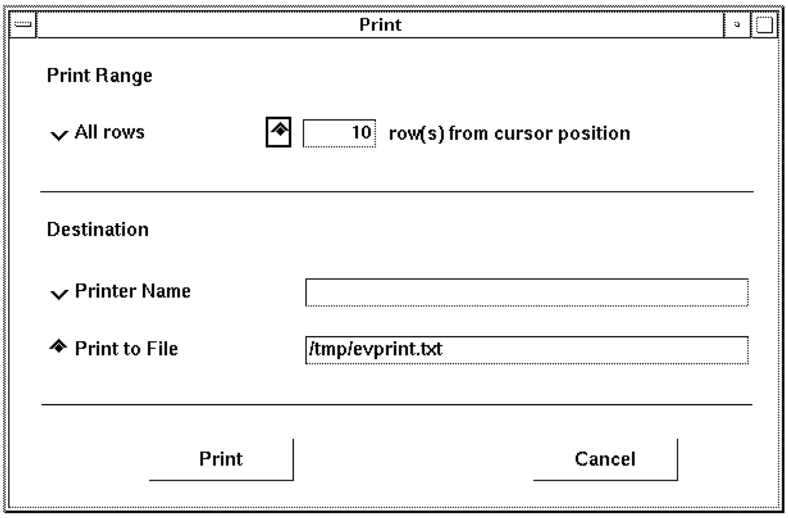
Buttons

The Sort by radio buttons for:

Object Name	For all buttons, click on the button next to the item you want to sort by. For a description of the items - se above.
Reason	
Attribute	
Sect	
Netw	
Node	
Local Time	

Buttons at the bottom of the display:

List	Click on List to bring up the List of the Log Names dialog box. This is the very first thing you should do after you have entered the display.
Query	Click on Query to fetch get data and update screen.
Reset	Click on Reset to clear all input fields (Object Name, Reason, ... and so on). Two fields will not be cleared though - the Local Time fields. After Reset those two fields will show the last hour. Two request data from another event log - click on List to bring up the List of Log names dialog box.
Print	Click on Print to print event data in form. A print dialog will be displayed where print range can be selected and destination of output can be entered.
Exit	Click on Exit to close and exit the Event Log Presentation display.



All rows

◆ 10 row(s) from cursor position

Printer Name

◆ Print to File /tmp/evprint.txt

Figure 4-4. Print dialog window

Buttons and input fields in print dialog window

The Print Range radio buttons:

All rows	Print all rows in the form retrieved in the most resent query.
.. row(s) from cursor position.	The number of rows entered in the input field is printed. From current cursor position and downwards.

Destination:

Printer Name	The command used is lp = line printer. Only the printers supporting ascii print out can be entered.
Print to File	The default output file is /tmp/evprint.txt. File name can be entered but the IMS user must have write access to the file or directory given.

Buttons:

Print	Click on Print to print event data according to set up.
Cancel	Click on Cancel to close and exit the print dialog display.

Chapter 5 Maintenance

5.1 Preventive Maintenance

The AdvaInform Basic Functions contains functionality for backup and restore on two levels: full and incremental.

Full Backup and Full restore

Full Backup makes a complete backup of the IMS disks and the Full Restore function restores them. The Full Backup and Restore functions require that IMS be shut down.

Incremental Backup and Incremental Restore

The Incremental Backup saves the current system configuration and all event data and stores the database backup and all other modified disk files on a selected set of directories on DAT tape. By complementing the Full Backup with a repeated Incremental Backup, your installation and configuration and application data are secured. The restore function restores all files that do no longer exist on the system. It does not overwrite files with the same or newer time stamp as in the backup.

In the *Advant Station 500 User’s Guide* you can find information about the Station Backup and Restore feature included in AdvaInform Basic Functions.

5.2 Hardware Indicators

Not applicable.

5.3 Error Messages

5.3.1 Message Format

The error messages issued by AdvaInform Basic Functions and options have the following standardized format.*:*

Error string <P1><P2><P3>

Parameters: P1: description of parameter 1
P2: description of parameter 2
P3: description of parameter 3
The parameters are optional in an error message. This means that there might be no parameter, just a text, or one, two or three parameters.

Audience: The audience of the error message. Valid entries are Operator, Engineer, Service and Debug.

Cause: Cause of the error.

Action: Action to take when the error occurs.

The error messages are sorted after their severity in the following classes:

- Fatal error messages
- Error messages
- Warning messages
- Information messages.

Example:

OMF error during Server access, (errno = <P1>)

Parameters: **P1: OMF return status**

Audience: Engineer

Cause: An OMF error occurred when the SQL*Connect Server was accessed from a client.

Action: Check for error logs from OMF and if the omfPM process is running. If not running, restart IMS.

Error messages are sent from the Event Log whenever access to the User API, the Oracle database or the operating system fails. All errors will result in at least three error logs, which resemble a “stack dump” which, in turn, is there to help you track down the cause of the error and to take appropriate actions to prevent the problem from reappearing. A “stack dump” - the set of error messages - will always contain the following:

- A System- API- or Oracle error message. This message contains all vital information necessary to track down the problem. The severity level of this message is always *Error*.
- A message which specifies the name of the internal Event Log function where the previous error occurred. This message is sent because it mirrors the internal source code structure, which often is useful when a more through problem analysis is performed. The severity level of this message is always *Warning*.
- A message which describes how the Event Log interpreted the previous two messages. This message, whose severity level is either *Information* (something went wrong, but execution continues anyway) or *Fatal Error* (execution terminates immediately). This message does always have a documented cause and action.

If you are going to analyze a “stack dump” please identify the error codes/message sent from either the User API, the Oracle database or the operating system. A Message from Oracle is self-explanatory whereas messages from the User API or the operating system requires further interpretation. In order to get cause and action for an error message from Oracle, simply use the tool oerr. Information on operating system errors can be obtained using the man-pages for individual services (error names and numbers are found in the file /usr/include/sys/errno.h). Finally, information on errors that emanate from the User API is found in the *AdvaInform Basic Functions User's Guide*.

5.3.2 Error Messages

System Error

Parameters:	P1: Name of the system service from which the error was returned
	P2: System error number
Audience:	Engineer
Cause:	A run time error occurred in a system service.
Action:	Find the *Information*- or *Fatal Error* message which was sent together with this one.

API Error

Parameters:	P1: Name of the AdvaInform User API service from which the error was returned. P2: Error code returned from the service itself P3: Error returned from the object (EVENTLOG)
Audience:	Engineer
Cause:	A run time error occurred in a API-service.
Action:	Find the *Information*- or *Fatal Error* message which was sent together with this one.

Oracle Error

Parameters:	P1: The error message returned from Oracle. P2: The Oracle error number P3: The id of the Oracle service from which the error was returned.
Audience:	Engineer
Cause:	Access to the Oracle database failed.
Action:	Find the *Information*- or *Fatal Error* message which was sent together with this one.

Tablespace is full

Audience:	Engineer
Cause:	There are two tablespaces default. One stores event data and the other stores indexes, one or both are full.
Action:	Extend both tablespaces. Contact ABB.

5.3.3 Warning Messages

Function Error

Parameters:	P1: Name of the internal Event Log function from which the error was sent.
Audience:	Engineer
Cause:	A system- API- or Oracle error occurred in an internal Event Log function.
Action:	None

Failed to read description from object

Parameters: P1: Name of the object which Event Log was unable to read object description from.

Audience: Engineer

Cause: The node where the object resides is unreachable or an OMF error has occurred.

Action: Check the node where the object resides then retry to read object description with the Event Log tool "evutil".

5.3.4 Fatal Errors

Failed to connect to database

Audience: Engineer

Cause: The Oracle database is not available

Action: Determine if Oracle is available or not, for example by logging in to the database via SQL*Plus. If Oracle is not available, restart IMS.

Failed to create communication channel

Audience: Engineer

Cause: The FIFO special file /products/ipc/EVCOMM could not be created

Action: If the error number is 28, your root-disk is full. (use the bdf command to check this). If so, free some space by removing files from the /tmp- and /usr/tmp directories

Failed to open communication channel

Audience: Engineer

Cause: The Oracle database is not available

Action: Restart IMS. If the problem is still there, please contact ABB.

5.3.5 Information Messages

Failed to collect data from primary log

Parameters: P1: Log-ID

Audience: Engineer

Cause: A primary log is not available.

Action: Determine the location of the primary log (use evutil to translate log ID to log name). Use the system status display to check status for the node where the primary log is located. If the node in question is up, please check the error codes returned from the User API. If something is wrong with your local node restart IMS.

Failed to store event data

Audience: Engineer

Parameters: P1: Log-ID

Cause: Something obstructs storage of event data in Message Logs.

Action: Determine the name of the primary log (use evutil to translate log ID to log name). Do you have enough space left in the History database? Is the database available?

Failed to read event log

Audience: Engineer

Cause: Failed to read configuration data for an event log

Action: Is the database available? Try to log in to Oracle vis sqlplus. Is your database corrupt? Use evutil to fix the database.

Identity not defined

Audience: Engineer

Cause: Identity has not yet been defined.

Action: Define identity.

Failed to read configuration data

Audience: Engineer

Parameters: P1: Log-name

Cause: Unable to read event log configuration data from the database.

Action: Is the database available? Try to log in to Oracle vis sqlplus. Is your database corrupt? Use evutil to fix the database.

Failed to communicate with Event Log Configuration

Audience: Engineer

Cause: The Event Log communication process could not read a message from the configuration tool.

Action: Please contact ABB.

5.4 Fault Finding and User Repair

The tools for finding the cause of a malfunction in your IMS system are:

- The message on your screen

  Normally, the message is sufficient for you to fix the problem. For messages from Oracle tools the ***oerr*** on-line tool is also available.

- The System Message display

  To understand messages from the Event Log and options you can find more information in Section 5.3, Error Messages. In the *AdvaInform Basic Functions User's Guide* you can learn how to use the display and what features that are available. The System Message Display also lets you display each error log with more details about it.

- The Oracle trace files

  The information in those files together with the ***oerr*** on-line tool will help you. In the *AdvaInform Basic Functions User's Guide* you can find information about the trace files and how to use the tool.

- The Status displays

  The *AdvaInform Basic Functions User's Guide* provides information regarding the status displays. For example, you can check whether a process related to your problem is running or not.

NOTE

If the IMS is stopped in an uncontrolled way the relational database may crash and be corrupted. Therefore, stop Oracle before you shut down the node or reboot.

Before you do extensive trouble-shooting, make sure there is no simple reason for your problem. For example, make sure that you are authorized to perform the function you are trying to do. Make sure there is nothing in your configuration data that spoils the function and so on

5.5 Using evutil

evutil is a utility program for maintenance and trouble shooting. To see all options - enter:

```
/opt/advant/EventLog/bin/evutil
```

-ID Change station ID

If you for some reason have to change an Identity number already set (can also be done from EventLog Configuration -> File -> Change Identity) then enter the following command:

```
/opt/advant/EventLog/etc/evutil -ID old_id_No new_id_No
```

Example

```
/opt/advant/EventLog/etc/evutil -ID 3 4
```

will change identity number from 3 to 4.

-obj <object name(s)> Resolve objects and store them in database

If you want to store a description for a object that has not been resolved, indicated with a * in the Presentation Display, or if a object has a new description that you want store in the database -enter:

```
/opt/advant/EventLog/etc/evutil -obj <object names>
```

Example

```
/opt/advant/EventLog/etc/evutil -obj AIC53_1 DIC53_2 DOC53_3
```

will resolve the objects and store the description in the database.

-allObjs Resolve all objects in database and store description

This does the same as -obj except it does it for all object names in the database. This can take very long time if there are many objects in the database and should only be executed when many of the object descriptions in the system have been changed. In all other cases the -obj option must be used. The time to execute this command can be calculated as: Nr Of Objects * 0.5 min

```
/opt/advant/EventLog/etc/evutil -allObjs
```

CAUTION

This command should only be executed when a significant part of the object descriptions in the system have been changed, as the operation takes very long time for larger systems and resolves a large number of object names.

5.6 Error Reporting

In Chapter 5 in the *Advant Station 500 Series IMS User's Guide* you can find information about how to report errors and suggestions for improvements to ABB Industrial Systems AB.

Chapter 6 FAQ (Frequently Asked Questions)

When should I use the own IMS RTA and when should I collect information from other nodes?

When you collect events within the same control network, always read the events from your own node. This prevents any extra traffic on the communication network. From other control networks you must use an external node as data source.

How do I know which Event Log Id to use?

If you have another Event Log option installed in another Advant Station or SuperView 900 you must select a number that does not collide.

When should I use the process section filtering?

The only time the section filtering should be used is when you have too little database space or too much event noise. Normally, it is much easier to collect all events and sort out the requested one from the Event Log Presentation Display or using SQL.

H**ow do I get the performance when using the Event Log Presentation Display and SQL*Plus respectively?**

To achieve good performance on your queries, follow these guidelines:

- Use small time intervals. The number of rows that fit the search condition decides the time to perform the query.
- If object name is used as condition use the object name without any % if possible.
- Specify as many search conditions as possible. Reason, attribute, network, node etc.

How do I do to present the event reason and event property texts that I configured in the Operator Station?

You cannot, the Event Log cannot access that information from the primary logs.

The event reason and event property texts for the SEQUENCE object is not correct. The STEP documentation seen on the operator event list are not presented.

This is true. The Event Log cannot access this information from the primary logs. The STEP changes use the “user defined” text feature which is not supported.

Appendix A Event Reasons and Attributes

A.1 Event Reasons.

Table A-1. Event Reasons - Names, Numbers and Descriptions

Reason Name	Reason Number	Description
Normal	0	Describes the object as in a normal state (again).
Blocked	1	The object is blocked. The event attribute describes what is blocked.
Deblocked	2	The object is deblocked. The event attribute describes what is deblocked.
Alarm_on	3	The event will be acknowledged, that is., it is an alarm.
Alarm_off	4	The object has left the alarm state.
Sys_text	5	System message indicating an error in the system.
Val_change	6	A value change has occurred. The event attribute gives more specific information on what has been updated.
Event_on	9	An event is raised. The event attribute gives additional information, e.g., alarm limit.
Event_off	10	The object leaves the event state. The event attribute gives additional information, e.g., alarm limit.

A.2 Event Attributes

Table A-2. Event Attributes - Names, Numbers and Descriptions

Attribute Name	Attribute Number	Description
UNKNOWN	0	The event attribute is not included in the list of attributes supported by the Object Form.
null	1	No relevant attribute or reference exists in the event list.
VALUE	2	Can appear in combination with different reasons, Val_change for example.
ERROR	3	Can also appear in combination with different reasons.
Hi_Lim2	4	The value is above high limit 2
Hi_Lim1	5	The value is above high limit 1
Lo_Lim1	6	The value is below low limit 1

Table A-2. Event Attributes - Names, Numbers and Descriptions (Continued)

Attribute Name	Attribute Number	Description
Lo_Lim2	7	The value is below low limit 2
PRINT_BLK	9	
ALARM_BLK	10	
UPD_BLK	11	
DISTURBANCE	12	
otravi	13	
ctravi	14	
vc_n	15	
vo_n	16	
sparem	17	
emergm	18	
posf	19	
posindf	20	
swgf	21	
powf	22	
altf	23	
dcm_err	24	
servuc	25	
pc_blk	26	
hw_err	27	
manual	28	
auto	29	
JumpError	30	
AckPosFault	31	
gennoverr	32	
order	33	
increase	34	

Table A-2. Event Attributes - Names, Numbers and Descriptions (Continued)

Attribute Name	Attribute Number	Description
decrease	35	
startoff	36	
posalarm	37	
posprint	38	
faultalarm	39	
faultprint	40	
p0_n	41	
p1_n	42	
seqal	43	
stepal	44	
pos	45	
hold	46	
start	47	
reset	48	
step	49	
uncond	50	
jump	51	
jpos	52	
nooft	53	
intervt	54	
run	55	
end	56	
cond	57	
autoind	58	
manind	59	
holdind	60	
uncondind	61	

Table A-2. Event Attributes - Names, Numbers and Descriptions (Continued)

Attribute Name	Attribute Number	Description
mvl2	62	
mvl1	63	
mvh1	64	
mvh2	65	
devl	66	
devh	67	
localfl	68	
manfl	69	
autofl	70	
e1fl	71	
e2fl	72	
e3fl	73	
auxerr	74	
maxlim	75	
minlim	76	
genbsloc	77	
genbsman	78	
mmcorder	79	
aierr	80	
aoerr	81	
e1	82	
e2	83	
f1alarm	84	
f1print	85	
f2alarm	86	
f2print	87	
f3alarm	88	

Table A-2. Event Attributes - Names, Numbers and Descriptions (Continued)

Attribute Name	Attribute Number	Description
f3print	89	
f4alarm	90	
f4print	91	
e3	92	
torqf	93	
manforce	94	
stop	95	
next	96	
seqindprint	97	
seqindalarm	98	
output	99	
gen16status	100	
gen17status	101	
gen18status	102	
gen19status	103	
gen20status	104	
gen21status	105	
gen22status	106	
gen23status	107	
gen00status	150	
gen01status	151	
gen02status	152	
gen03status	153	
gen04status	154	
gen05status	155	
gen06status	156	
gen07status	157	

Table A-2. Event Attributes - Names, Numbers and Descriptions (Continued)

Attribute Name	Attribute Number	Description
gen08status	158	
gen09status	159	
gen10status	160	
gen11status	161	
gen12status	162	
gen13status	163	
gen14status	164	
gen15status	165	
gen24status	166	
gen25status	167	
gen26status	168	
gen27status	169	
gen28status	170	
gen29status	171	
gen30status	172	
gen31status	173	
gen01mord	174	
gen02mord	175	
gen03mord	176	
gen04mord	177	
gen05mord	178	
gen06mord	179	
gen07mord	180	
gen08mord	181	
gen09mord	182	
gen10mord	183	
gen11mord	184	

Table A-2. Event Attributes - Names, Numbers and Descriptions (Continued)

Attribute Name	Attribute Number	Description
gen12mord	185	
gen13mord	186	
gen14mord	187	
gen15mord	188	
gen16mord	189	
gensp	190	
genspi	191	
genop	192	
genmvmax	193	
genmvmin	194	
genopmax	195	
genopmin	196	
genspmax	197	
genspmin	198	
genmaxintl	199	
genminintl	200	
gen_alarm	201	
gen_print	202	
gen_event	203	
genfberr	204	
genumode	205	
genupc	206	
genswgf	207	
genetrip	208	
gencentral	209	
genlocal	210	
genremote	211	

Table A-2. Event Attributes - Names, Numbers and Descriptions (Continued)

Attribute Name	Attribute Number	Description
genctrlblk	212	
genstby	213	
genotravi	214	
genaierr	215	
gendev	216	
genbal	217	
genmanfd	218	
genon	219	
genoff	220	
calcvalue	221	
genchange	232	
genwarning	233	
genadap	238	
genload	239	
SPC-Below LCL	501	SPC Event - Below Low Control Limit.
SPC-Above UCL	502	SPC Event - Above Upper Control Limit.
SPC-Range Below LCL	503	SPC Event - Range Below Lower Control Limit.
SPC-Range Above UCL	504	SPC Event - Range Above Upper Control Limit.
SPC-Trend Down	505	SPC Event - Trend Down.
SPC-Trend Up	506	SPC Event - Trend Up.
SPC-Range Trend Dwn	507	SPC Event - Range Trend Down.
SPC-Range Trend Up	508	SPC Event - Range Trend Up.
SPC-Zone Low	509	SPC Event - Zone Low.
SPC-Zone High	510	SPC Event - Zone High.
SPC-Range Zone Low	511	SPC Event - Range Zone Low.
SPC-Range Zone High	512	SPC Event - Range Zone High.
SPC-Alarm Off	513	An SPC Event is no longer active.

Table A-2. Event Attributes - Names, Numbers and Descriptions (Continued)

Attribute Name	Attribute Number	Description
UPS_Status	514	UPS Status OK again.
UPS_S_Battery	515	UPS on Battery, no main Power.
UPS_S_BatteryLow	516	UPS - Battery Low, Shutdown.
UPS_S_Off	517	UPS - Off, Switch it on.
UPS_S_NotOnLine	518	UPS - Off, Switch it on.
UPS_S_ProgramError	519	UPS - Software communication error.
UPS_S_LineError	520	UPS - Line communication error.

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